SANYO

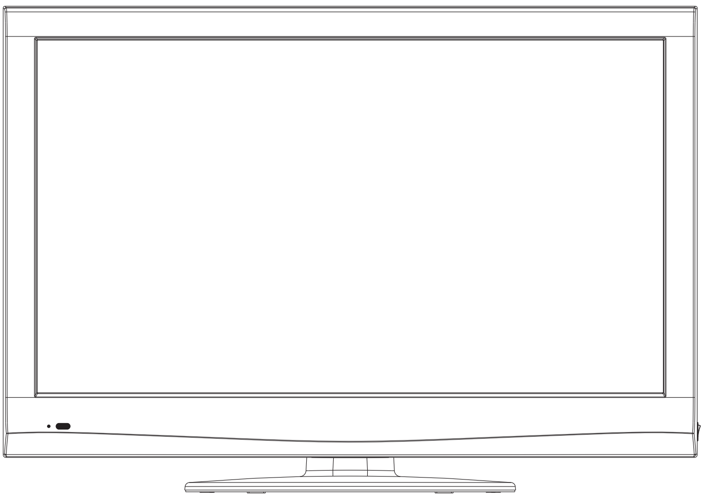
FILE NO.

SERVICE MANUAL

LCD TV

LCD-37XR9DA(B)

PRODUCT CODE No.
1 682 348 98: CCIR DVB-T





REFERENCE No.:SM0915082

CONTENTS

Attention: This service manual is only for service personnel to take reference with. Before servicing please read the following points carefully.

Safety precautions

1. Instructions

Be sure to switch off the power supply before replacing or welding any components or inserting/plugging in connection wire Anti static measures to be taken (throughout the entire production process!):

a) Do not touch here and there by hand at will;

b) Be sure to use anti static electric iron;

c) It's a must for the welder to wear anti static gloves.

Please refer to the detailed list before replacing components that have special safety requirements. Do not change the specs and type at will.

2. Points for attention in servicing of LCD

2.1 Screens are different from one model to another and therefore not interchangeable. Be sure to use the screen of the original model for replacement.

2.2 The operation voltage of LCD screen is 700-825V. Be sure to take proper measures in protecting yourself and the machine when testing the system in the course of normal operation or right after the power is switched off. Please do not touch the circuit or the metal part of the module that is in operation mode. Relevant operation is possible only one minute after the power is switched off.

2.3 Do not use any adapter that is not identical with the TV set. Otherwise it will cause fire or damage to the set.

2.4 Never operate the set or do any installation work in bad environment such as wet bathroom, laundry, kitchen, or nearby fire source, heating equipment and devices or exposure to sunlight etc. Otherwise bad effect will result.

2.5 If any foreign substance such as water, liquid, metal slices or other matters happens to fall into the module, be sure to cut the power off immediately and do not move anything on the module lest it should cause fire or electric shock due to contact with the high voltage or short circuit.

2.6 Should there be smoke, abnormal smell or sound from the module, please shut the power off at once. Likewise, if the screen is not working after the power is on or in the course of operation, the power must be cut off immediately and no more operation is allowed under the same condition.

2.7 Do not pull out or plug in the connection wire when the module is in operation or just after the power is off because in this case relatively high voltage still remains in the capacitor of the driving circuit. Please wait at least one minute before the pulling out or plugging in the connection wire.

2.8 When operating or installing LCD please don't subject the LCD components to bending, twisting or extrusion, collision lest mishap should result.

2.9 As most of the circuitry in LCD TV set is composed of CMOS integrated circuits, it's necessary to pay attention to anti statics. Before servicing LCD TV make sure to take anti static measure and ensure full grounding for all the parts that have to be grounded.

2.10 There are lots of connection wires between parts behind the LCD screen. When servicing or moving the set please take care not to touch or scratch them. Once they are damaged the screen

would be unable to work and no way to get it repaired.

If the connection wires, connections or components fixed by the thermotropic glue need to disengage when service, please soak the thermotropic glue into the alcohol and then pull them out in case of dagmage.

2.11 Special care must be taken in transporting or handling it. Exquisite shock vibration may lead to breakage of screen glass or damage to driving circuit. Therefore it must be packed in a strong case before the transportation or handling.

2.12 For the storage make sure to put it in a place where the environment can be controlled so as to prevent the temperature and humidity from exceeding the limits as specified in the manual. For prolonged storage, it is necessary to house it in an anti-moisture bag and put them altogether in one place. The ambient conditions are tabulated as follows:

Temperature	Scope for operation	0 ~ +50 ^{o}C
	Scope for storage	-20 ~ +60 ^{o}C
Humidity	Scope for operation	20% ~ 85%
	Scope for storage	10% ~ 90%

2.13 Display of a fixed picture for a long time may result in appearance of picture residue on the screen, as commonly called “ghost shadow”. The extent of the residual picture varies with the maker of LCD screen. This phenomenon doesn’t represent failure. This “ghost shadow” may remain in the picture for a period of time (several minutes). But when operating it please avoid displaying still picture in high brightness for a long time.

3. Points for attention during installation

3.1 The front panel of LCD screen is of glass. When installing it please make sure to put it in place.

3.2 For service or installation it’s necessary to use specified screw lest it should damage the screen.

3.3 Be sure to take anti dust measures. Any foreign substance that happens to fall down between the screen and the glass will affect the receiving and viewing effect

3.4 When dismantling or mounting the protective partition plate that is used for anti vibration and insulation please take care to keep it in intactness so as to avoid hidden trouble.

3.5 Be sure to protect the cabinet from damage or scratch during service, dismantling or mounting.

Alignment instructions

1. Test equipment

VG-848 (YPbPr,VGA signal generator)
VG-849 (HDMI signal generator)
CA210 (white balancer)

2. Power test

Connect data processing board, power board and IR board according the wiring diagram, connect the power and press “standby” button to turn on the TV.

a) Test the pin voltage of X808, the data is shown in table1:

Table1 voltage data of X808

X808	Pin1	2	3	4,5	6,7	8	9	10	11	12	13
Voltage	5.4~5.6V	3.2~3.4V	0	11.4~12.6V	0	31.4~32.6V	4.85~5.35V	0	4.85~5.35V	0	>2.5V

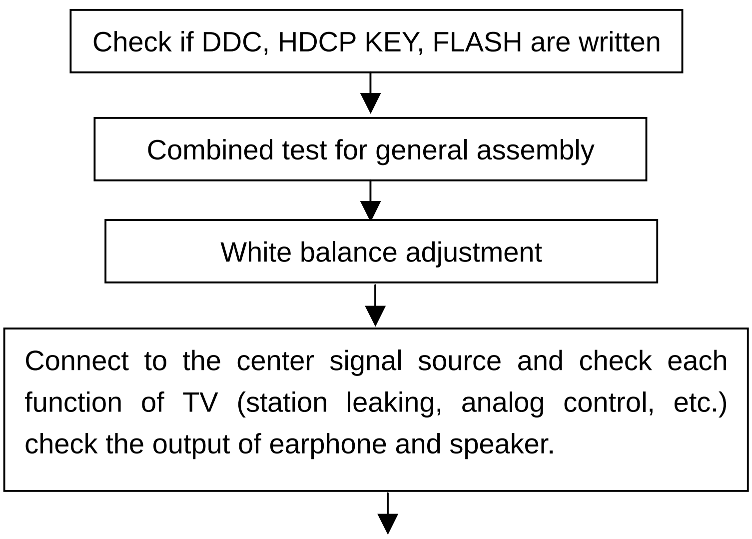
b) Test the pin voltage of XV03, the data is shown in table2:

Table2 voltage data of XV03

XV03	Pin1, 2	3, 4, 5
Voltage	23.8~25.2V	0

3. Alignment flow-chart

The alignment flow-chart is shown as fig-1



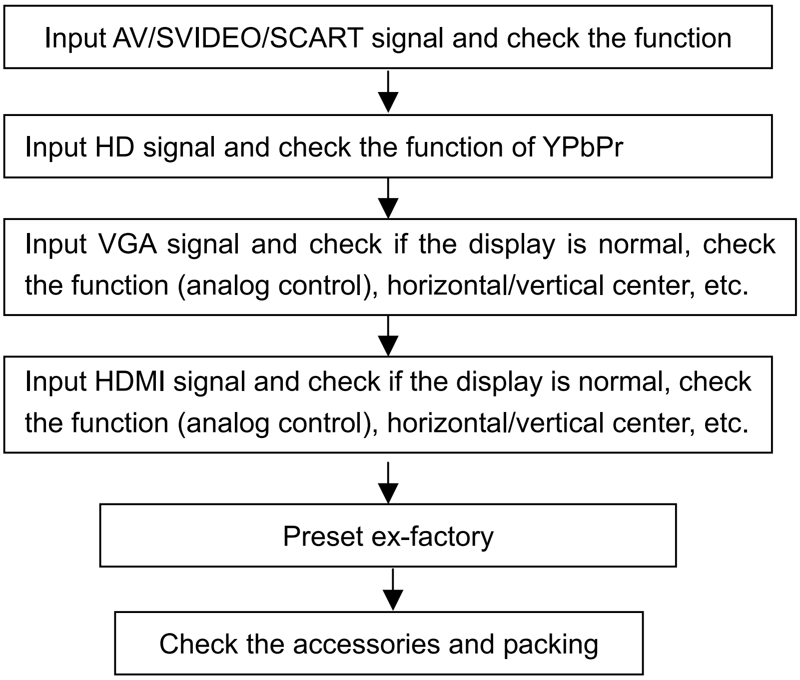


Fig-1 adjustment flow-chart

4. Adjustment instruction

4.1 Unit adjustments

4.1.1Connect all the boards according to wiring diagram, then power on and observe the display.

4.1.2 Method for entering factory menu:

a) Press “SOURCE”, “2”, “5”, ”8” and “0” in turn to enter factory menu;
b) Press “CH+” and “CH-” to move the cursor to the adjustment page of the level one factory menu, then press ”OK” to enter;
c) Press “CH+” and “CH-” to move the cursor up and down;
d) Press “VOL-” and “VOL+” to adjust the item when the cursor move to a certain adjust item;
e) Press “MENU” to exit to the previous factory menu;
f) Press “EXIT” to exit the factory menu at any situation;
g) Press “OK” to enter the sub factory menu;
h) **ADC ADJUST**, ADC calibration of VGA, Component channel;
i) **W/B ADJUST**, white balance adjustment;
j) **POWER Mode**, set the turn-on modes. Standby---standby when power on; Mem---memory; ForceOn---power on; ForceOn can be used for aging; set the “power mode” to “Standby” when preset ex-factory unless the client appointed it;
k) **ISP Mode**, ON---soft upgrading through VGA port with ISP device, OFF---DDC function of VGA; the setting will not be memory and will be “OFF” when power on again;
l) **REST ALL**, initialization of the factory and user data; after this item is confirm, the unit will restart and display the guiding image.
m) **Factory Data Reset**, factory data initialization (including white balance adjustment, ADC calibration and other adjusted data);
n) **Factory Channel Preset**, preset the factory channel; please connect to the center signal source when operating; the present digital frequency is CH28 (529.5MHz), CH33 (564.5MHz) for Australia and CH45 (666MHz) for UK, if the signal changes, perform “DTV manual search” in

"Channel" menu and the operation needs 15s or so.

o) **MST Debug**, the default is OFF. OFF---RS-232 should match the design criterion; ON--- it should be convenient for using exploitation tool to adjust. The setting will not be memory and will be "OFF" when power on again;
p) **Backlight**: adjust the backlight brightness, adjust the data and test the voltage of X804 pin2 (PWM), let the voltage to be the corresponding PWM voltage which the brightness is maximum. It will be preset and doesn't need adjust.
q) **SSC Adjust**, adjust the frequency spectrum expand, it will be preset and doesn't need adjust.
r) **AUDIO Curve**, adjust the sound curve, it will be preset and doesn't need adjust.
s) **Picture Mode**, set the picture values of each channel. Normally, they are preset and needn't adjust.
t) There is data in EEPROM after software upgrade, please perform Reset All before the first adjustment.

4.2 ADC calibration

4.2.1ADC calibration in VGA channel

a) Switch to VGA channel.
b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.
c) Move the cursor to "ADC ADJUST" and press OK to enter the sub-menu.
d) Input VGA signal (VG-848 Timing:856(1024x768/60Hz), Pattern:920 Gray 8 step(H)). Move the cursor to "mode", press CH+ and CH- to select "RGB", move the cursor to "AUTO ADC" and press OK to adjust automatically till complete.

4.2.2 ADC calibration in YPbPr channel

a) Switch to YPbPr channel.
b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.
c) Move the cursor to "ADC ADJUST" and press OK to enter the sub-menu.
d) Input YPbPr signal (VG-848 Timing:978(483P), Pattern:984 SMPTE Color Bar). Move the cursor to "mode", press CH+ and CH- to select "YPbPr(HD)", move the cursor to "AUTO ADC" and press ENTER to adjust automatically till complete.
e) Input YPbPr signal (VG-848 Timing:978(483P), Pattern:984 SMPTE Color Bar). Move the cursor to "mode", press CH+ and CH- to select "YPbPr(SD)", move the cursor to "AUTO ADC" and press ENTER to adjust automatically till complete.

4.3 White balance adjustment

The default of color temperature of COOL is 12000K and the coordinate is (272, 278); color temperature of NORMAL is 9300K and the coordinate is (285,293), color temperature of WARM is 6500K and the coordinate is (313,329).

4.3.1 Adjustment steps

Before the white balance adjustment, please let the unit working at least 30 minutes and at a stable situation, use BBY channel of the white balancer CA-210.

a) Switch to HDMI channel;
b) Press" SOURCE", then press "2, 5, 8, 0" in turn to enter the level one factory menu.
c) Move the cursor to "W/B ADJUST" and press OK to enter the sub-menu.
d) Input DVI/HDMI signal 1024X768/60Hz 16 step Gray (Timing:856, Pattern:921). Move the cursor to "MODE", press CH+ and CH- to select "HDMI" or other HDMI channel, move the cursor to "TEMPERTURE" and press CH+ and CH- to select "COOL".
e) Fix G GAIN, adjust R GAIN, B GAIN and let the color coordinate of the fourteenth scale be

(272,278).

f) Fix G OFFSET, adjust R OFFSET, B OFFSET and let the color coordinate of the third scale be (272,278).

g) When adjusting, please keep the color temperature of high light to be X=272±5, Y=278±5 and the low light to be X=272±8, Y=278±8.

h) Move the cursor to "COPY ALL" and copy the data to the other channels.

i) Check if the color temperatures of NORMAL and WARM are up to the mustard (low light acceptable error:±8, high light acceptable error:±5), if not, adjust R-GAIN/ B-GAIN/ R-OFF/ B-OFF.

j) Check the color temperature of COOL, NORMAL and WARM of other channels (ANALOGTV, DVB-T, Video, YPbPr,VGA), if they are not up to the mustard then adjust and store the data separately.

k) The reference of adjustment rule is below:
B gun: lower B gun to increase X, Y coordinate data, while raise B gun to decrease the data.
R gun: raise R gun to increase X coordinate data, while lower R gun to decrease the data; (R gun adjustment will affect X and Lv slightly).
G gun: raise G gun to increase Y coordinate data, while lower G gun to decrease the data; (G gun adjustment will affect Y and Lv greatly).

5. Performance check

5.1 TV function

Connect RF to the center signal source, enter Channel menu → auto search, check if there are channels be skipped, check if the picture and speaker are normal.

5.2 AV/S-Video terminals

Input AV/S-Video signal, check if the picture and sound are normal.

5.3 YPbPr/YcbCr terminal

Input YUV signal (VG848 signal generator), separately input the YUV signals listed in table3 and check if the display and sound are normal at any situation (power on, channel switch and format convert, etc.)

Table3 YUV signal format

No.	Resolution	H-frequecny (kHz)	V-frequecny (kHz)	Point clock pulse frequecny (MHz)	Note
1	720X480	15.734	60	13.5	480i(NTSC)
2	720X480	15.734	59.94	13.5	480i(NTSC)
3	720X576	15.625	50	13.5	576i(PAL)
4	720X480	31.469	60	27	480p(NTSC PROG)
5	720X480	31.469	59.94	27	480p(NTSC PROG)
6	720X576	31.25	50	27	576p(PAL PROG)
7	1280X720	45	59.94	74.18	720p(59p)
8	1280X720	45	60	74.25	720p(60p)
9	1280X720	37.5	50	74.25	720p(50p)
10	1920X1080	33.75	59.94	74.25	1080i(59i)
11	1920X1080	33.75	60	74.25	1080i(60i)
12	1920X1080	28.125	50	74.25	1080i(50i)

13	1920X1080	67.5	59.94	148.35	1080p(59p)
14	1920X1080	67.5	60	148.5	1080p(60p)
15	1920X1080	56.25	50	148.5	1080p(50p)
16	1920X1080	-	23.94/24	-	-
17	1920X1080	-	25	-	-
18	1920X1080	-	29.97/30	-	-

5.4 VGA terminal

Input VGA signal (VG848 signal generator), separately input the signals listed in table4 and check the display and sound. If the image is deflection of the Horizontal and vertical, select Picture->Screen->Auto Adjusting to perform auto-correct.

Table4 VGA signal format

No.	Resolution	H-frequecny (kHz)	V-frequecny (kHz)	Point clock pulse frequecny (MHz)	Note
1	640X480	31.469	59.94	25.175	IBM
2	720X400	31.469	70.086	28.322	IBM
3	640X480	37.861	72.809	31.5	VESA
4	640X480	37.5	75	31.5	VESA
5	800X600	35.156	56.25	36	VESA
6	800X600	37.879	60.317	40	VESA
7	800X600	48.077	72.188	50	VESA
8	800X600	46.875	75	49.5	VESA
9	1024X768	48.363	60.004	65	VESA
10	1024X768	56.476	70.069	75	VESA
11	1024X768	60.023	75.029	78.75	VESA
12	1152X864	67.5	75	108	VESA
13	1280X960	60	60	108	VESA
14	1280X1024	63.98	60.02	108	VESA
15	1280X1024	80	75	135	SXGA
16	1440X900	-	60	-	-
17	1680X1050	-	60	-	-
18	1360X768	47.7	60	85.5	-

5.5 HDMI terminal

Input HDMI signal (VG849 signal generator), separately input the signals listed in table4 and table5 and check the display and sound (32KHz, 44.1KHz, 48KHz) at any situation (power on, channel switch and format convert, etc.)

5.6 other functions check

a) Check the turn on/turn off timer, sleep timer, picture/sound mode, OSD, stereo and digital sound port, etc.
b) Check the digital program, if Audio Only is normal.
c) Check MHEG function of the digital program for UK unit.
d) Check if “CI: Common Interface” is normal.
e) Check logical channel number (LCN) for Australia.

f) Check logical channel number (LCN) for France, UK and Italy.
g) Check OTA function for Australia special custom.

6. Presetting before ex-factory

Enter user menu LOCK page, select “Restore Factory Default” to preset the ex-factory.

a) Clear the program information.
b) Clear VCHIP, parental control, etc.
c) Set the default data of user menu.
d) Set Menu Language to English.
e) Set Power on Mode to Off.

7. Software instruction

Table5 software instruction

No.	Code No.	Type	Function	written before paste	Method
N810	5272532003	EN25B32-100HIP	FLASH	Yes	Written with device like ALL11, write-protect, refer to note1.
N807	5272404002	AT24C04	HDMI KEY	Yes	Written with device like ALL11
NA03	5272402002	AT24C02	HDMI EDID	Yes	
NA04	5272402002	AT24C02	HDMI EDID	Yes	
NA08	5272402002	AT24C02	HDMI EDID (Australia only)	Yes	
N107	5272421002	AT24LC21A	VGA EDID	Yes	

Note1: write-protect setting: enter ALL-100 interface, select Config and press “config setting”, set Protect to “All Protect”, select “config” when writing. The “write-protect” will be set again when ALL-100 program restart.

Note2: software writing and upgrade method with ISP writing-device

(1) Main board upgrade: connect a four-pin wire of the ISP writing-device to Debug port(X806) on the main board; Unit upgrade: connect VGA ports of the ISP writing-device and the main board, enter factory menu and set “ISP Mode” to “ON”.

(2) Using Mstar writing-tool on line, click “Connect” menu, if it displays “Device EN25B32“ as shown in fig2, the connection is success, if it fails, select “EN25B52” of “Device” manually and press “Connect” again.

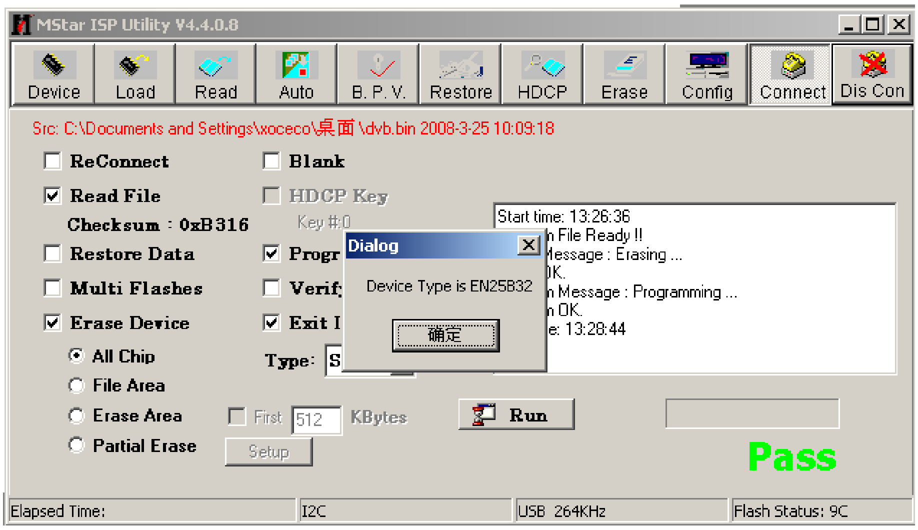


Fig2 Device EN25B52 successful connection

(3) Click “Read” and select the file written (MERGE.bin for example) as shown in fig3.

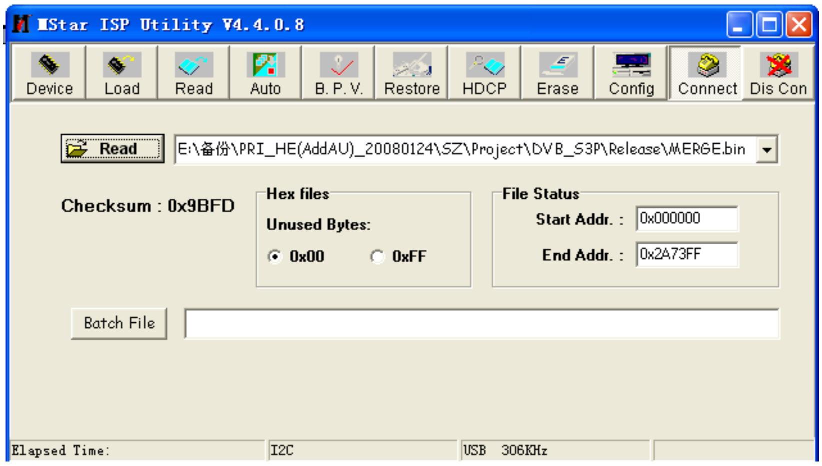


Fig3 the written file

(4) Click “Auto”, select “All chip” , “program” and other items as shown if fig4.

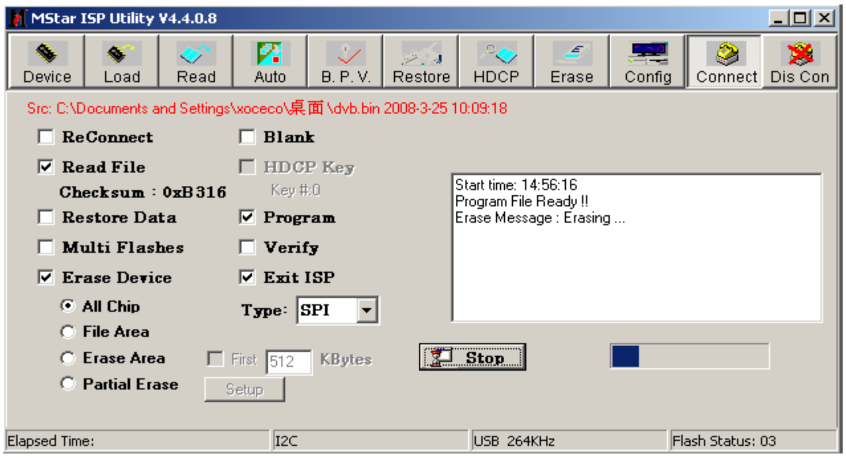


Fig4 selected items

(5) Press “Run” in fig4 to begin writing and there are two steps: Erase and Program.

(6) If the process of writing succeeds, it will display “Pass” near “Run” as shown in fig5.

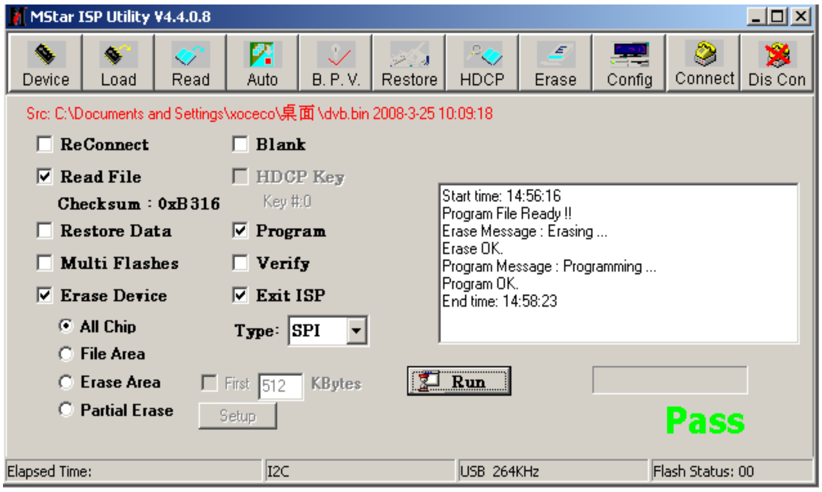


Fig5

(7) Repeat step 2) and 5) to write the program to the other units without exit the ISP interface.

Note3: software writing and upgrade method with USB port

(1) Make sure the USB device is formatted as FAT32.

(2) Copy the program named Merge.bin to USB device.

(3) Insert the USB device to USB port of the unit, power on and select RF-ATV channel, begin USB upgrade after OSD disappear. It will display blue when read the data from USB device, while display red when write Flash. The flash must be pull out when display red. It will flicker in red and blue if the process of writing is abnormal.

(4) The method are not applicable to all the USB devices, try another one if a certain USB device is inapplicable.

Working principle analysis of the unit

1. PAL/SECAM signal flow:

Antenna reception PAL/SECAM signal will be send to tuner TDA1616, which contains frequency turning, HF and IF amplifier circuit and is controlled by master control IC MSD109 (comprises CPU) through I2C bus. The analog IF signal via intermediate frequency amplifying, video SAW filter K3953 and audio SAW filter K9656 to input to analog demodulate IC (IF) R2A10406NP, after demodulating and output standard video signal TV-CVBS and sound IF signal (SIF).

TV-CVBS will send to the master control IC MSD109 to video decode, deinterlace and scale, then output LVDS level drive for panel display.

The sound IF (SIF) will be fed into MSD109, after demodulating, pre-amplifying, bass adjusting and volume control, the sound signal will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

2. DVB-T signal flow:

Antenna reception DVB-T signal will be sent to tuner TDA1616, after frequency tuning, HF amplification, IF amplification and SAW FILTER, output IF signal to demodulation chip CE6353, via QAM demodulation, fed to MSD109 for information source decoding in the format of standard serial TS stream.

HD video signal via decoding to A/D conversion and OSD superposition, at last output LVDS drive level for panel display.

HD audio signal via decoder built-in MSD109, resumed to multi- channel sound of Dolby AC-3. The audio signal will be sent to back end to perform bass adjustment and volume control, then it will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

3. AV/SV signal flow

SV signal and the first path AV signal switch automatically via S-terminal socket, the signal and the second path AV signal will be fed to MSD109 to perform video decode, deinterlace and scale, then output LVDS drive level for panel display.

Audio signal from AV/SV via matched resistance is fed to external audio switch HEF4052 to switch, then it is directly sent to MSD109 to bass adjust and volume control, the sound will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

4. PC/YPrPb signal flow

PC and the second path YPbPr signal are switched via external switcher PI5V330, then the signal and the first path YPbPr signal will be sent to MSD109 A/D conversion, output R/G/B of 24 bit to back end module to digital decode, image scale and OSD superposition, then send to LVDS level drive for panel display.

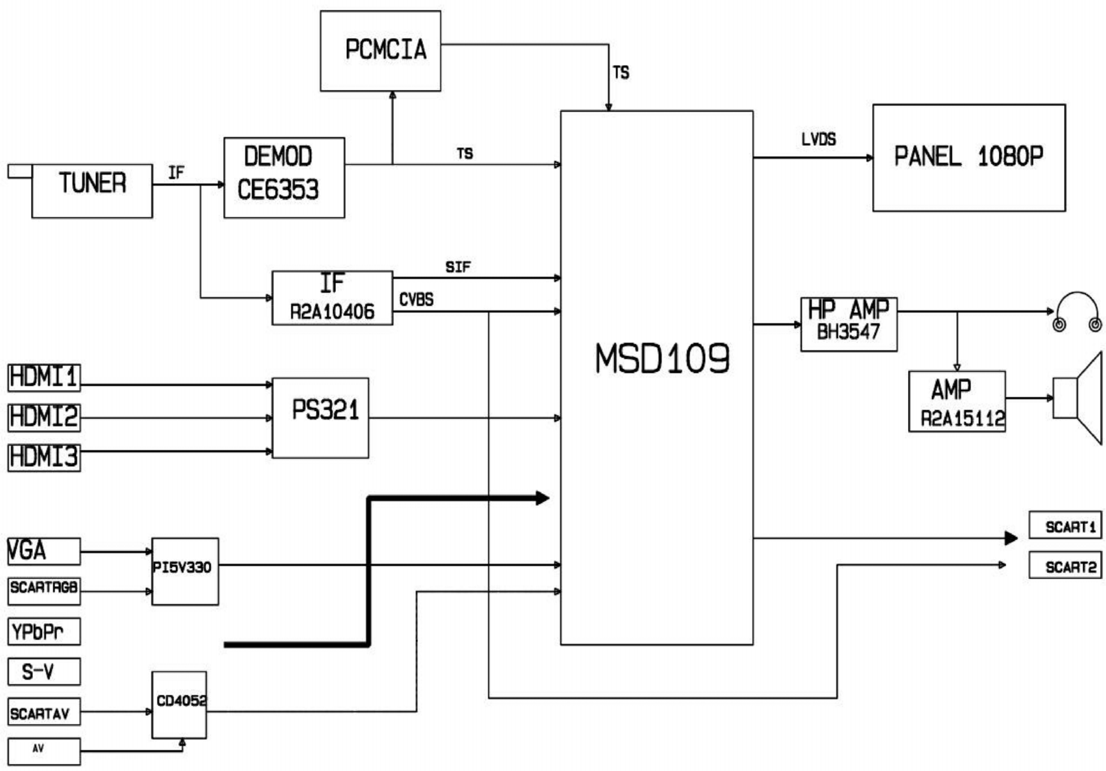
Sound signal of PC/YPrPb via matched resistance and a-c couple are sent to MSD109 to bass adjust and volume control, the sound will separate into L/R channels and input to earphone

amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

5. HDMI signal flow

Three HDMI video signals via switcher PS321 are directly fed to the master control IC MSD109 to digital decode, image scale and OSD superposition, then output LVDS drive level for panel display. HDMI audio signal via decoder built-in MSD109 is fed to back end to bass adjust and volume control, the sound will separate into L/R channels and input to earphone amplifier BH3547F amplifying, then output two ways. One way will be sent to earphone, another way will be sent to digital sound amplifier R2A15112FP amplifying then sent to speaker.

Block diagram



IC block diagram

1. MSD109CL

Twin-turbo 8051 MCU

Supports multi-path TS stream input

Two paths TS stream output, integrated switch selection

Supports both serial and parallel TS stream input

Maximum TS data rate is 104Mbps for serial or 13MB/sec for parallel

MPEG-2 audio decoder

MPEG-1, MPEG-2 (Layer I/II) and Dolby1 Digital(AC-3) audio decoder

MPEG-4 decoder

NTSC/PAL/SECAM video decoder

Supports NTSC-M, NTSC-J, NTSC-4.43, PAL (B,D,G,H,M,N,I,), and SECAM

Multi-standard sound processor

Supports BTSC/A2/EIA-J demodulation in NTSC and A2/NICAM/FM/AM demodulation in PAL

Supports MTS Mode MONO/STEREO/SAP in BTSC/EIA-J and MONO/STEREO/DUAL in A2/NICAM

Digital Audio Interface

Analog RGB Compliant/YUV input Ports

Two analog ports support up to 1080P

Supports PC RGB input up to SXGA@75Hz

Supports HDTV RGB/YPbPr/YCbCr

Supports Composite Sync and SOG (Sync-on-Green) separator

Automatic color calibration

DVI/HDCP/HDMI input ports

Supports up to 225MHz @ 1080P 60Hz with 12-bit deep-color resolution

High-bandwidth Digital Content Protection (HDCP) 1.1 compliant receiver

High Definition Multimedia Interface (HDMI) 1.3 compliant receiver with CEC (Consumer Electronics Control) support

Video Processing & Conversion

3-D motion adaptive video de-interlacers with edge-oriented adaptive algorithm for smooth low-angle edges

Automatic 3:2 pull-down & 2:2 pull-down detection and recovery

10-bit internal data processing

3-D video noise reduction

Output Interface

Supports up to 10-bit dual LVDS full-HD (1920 x 1080) panel interface

Video output port

Supports CVBS/S-video bypass output

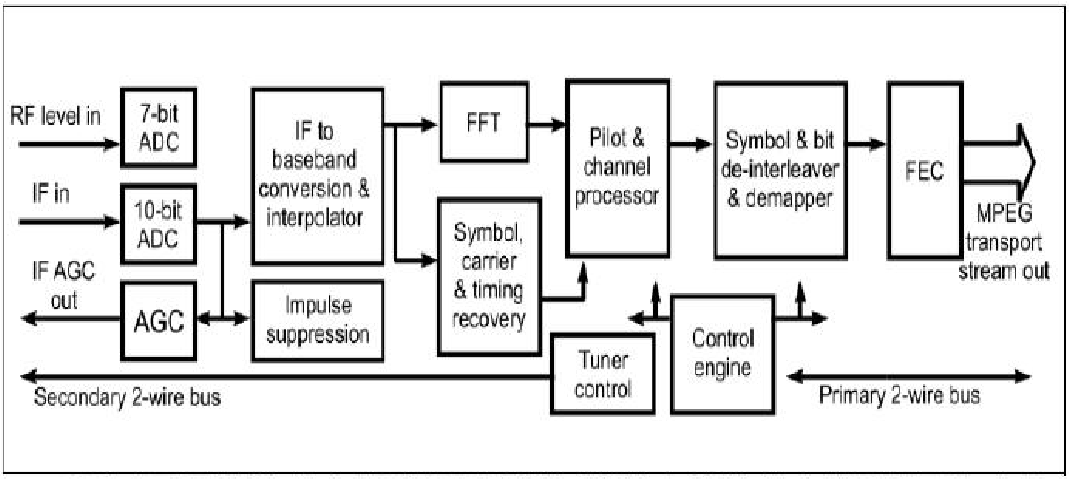
Built-in video encoder for encoding digital video into CVBS output

Miscellaneous

Supports DVB-CI port conditional receiver

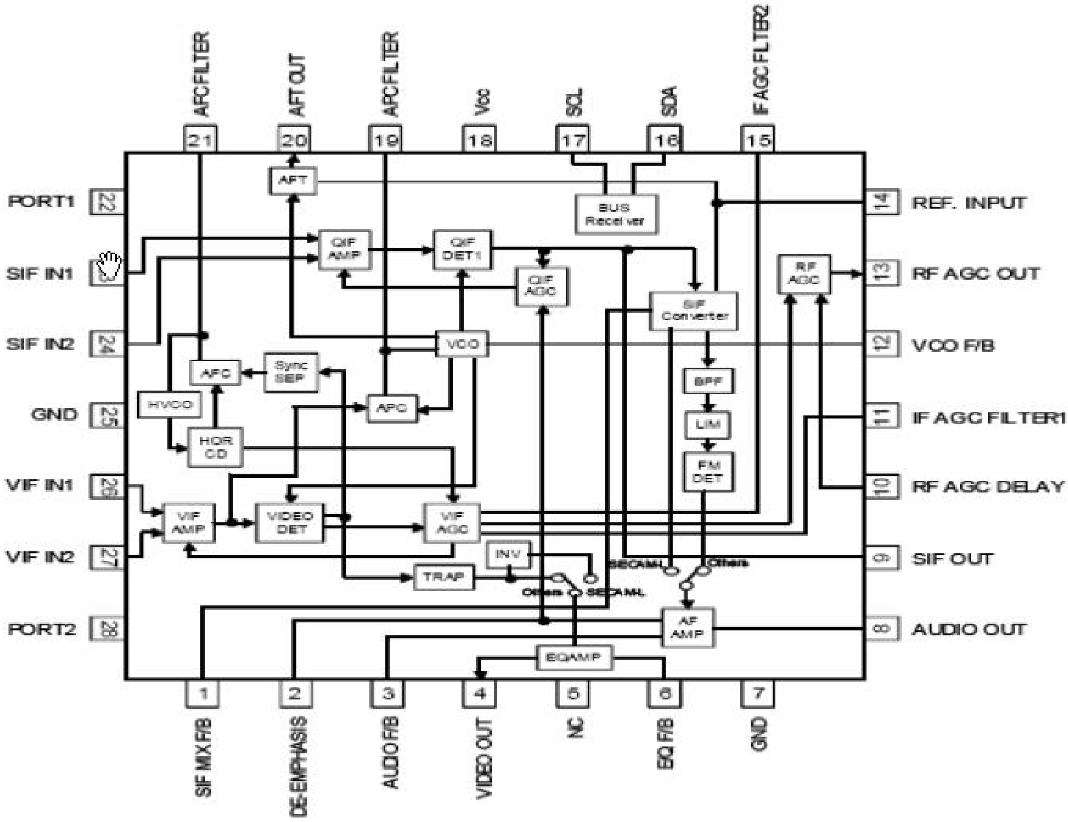
USB 2.0 port can be connected to the external equipment for software upgrading

2. CE6353



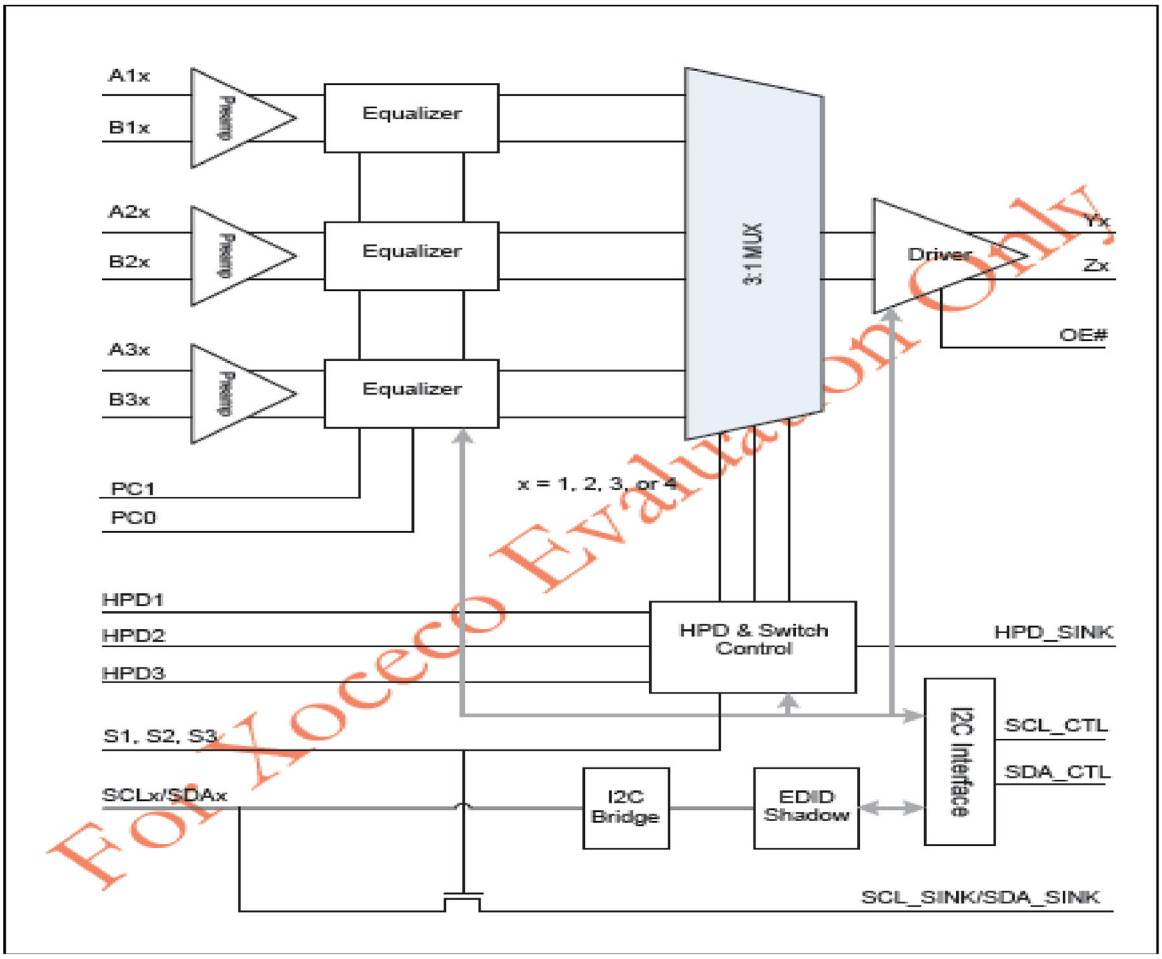
The chip comprises 8MHz bandwidth SAW and supports demodulation of 6MHz, 7MHz and 8MHz, 2K/8K carrier and supports both serial and parallel TS stream output.

3. R2A10406NP



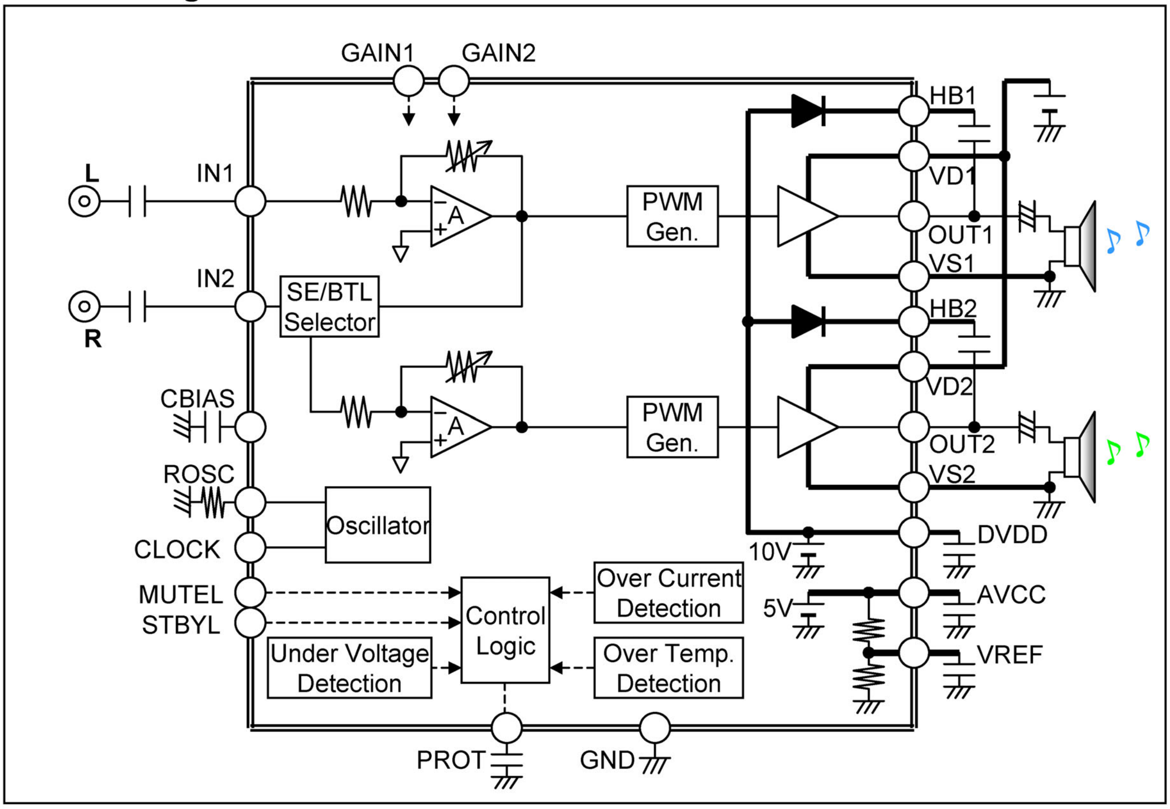
*VIF frequency corresponds to 38.9MHz.
*SIF frequency corresponds to M/N,B/G,I,D/K and SECAM L,L'.
*I2CBUS control.

4. PS321



The chip supports both I2C control and I/O control mode; supports both internal and external EDIT.

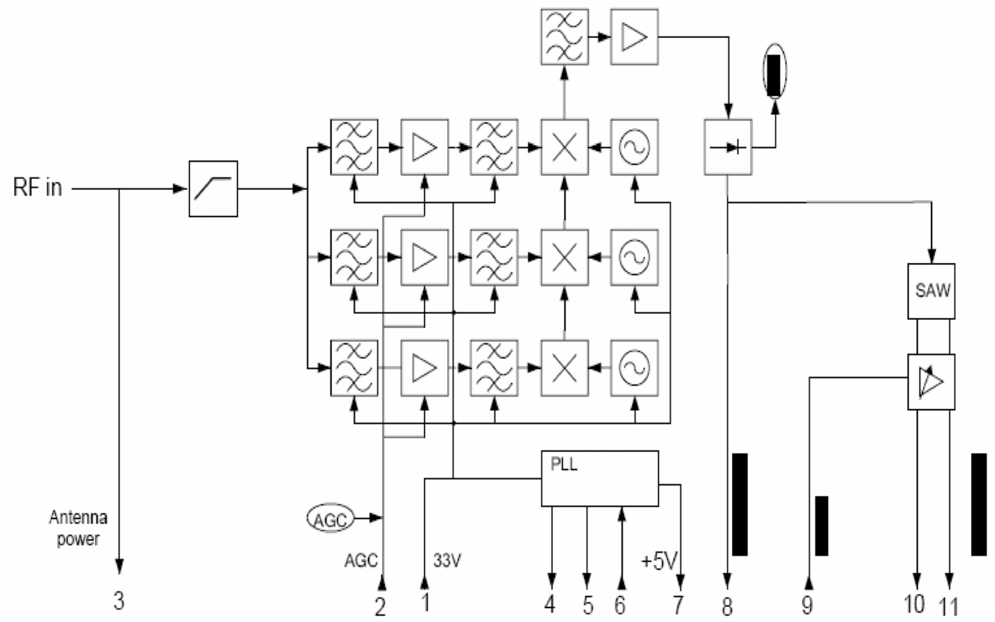
5. R2A15112FP



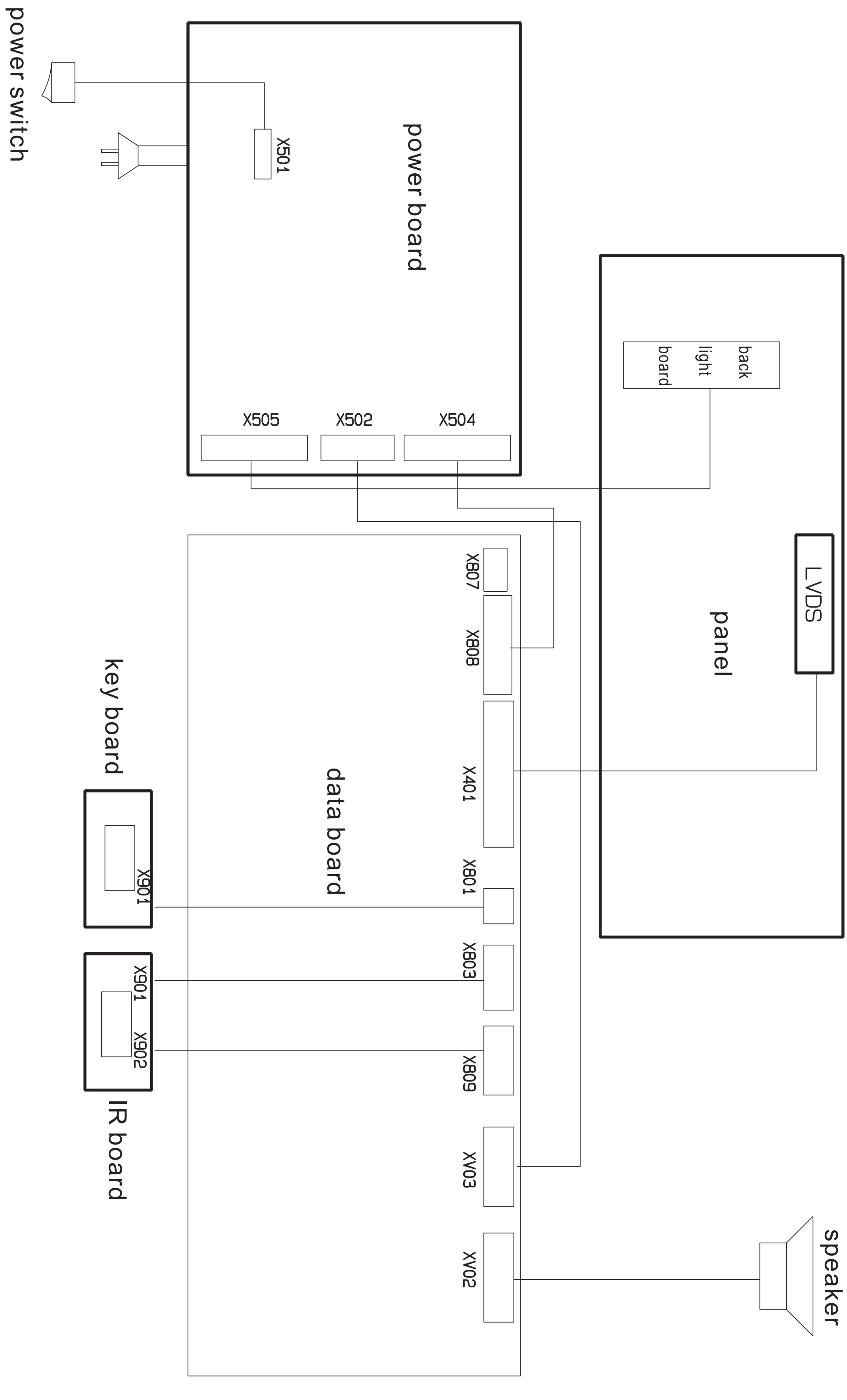
R2A15112FP has a maximum power of 15W(typ) × 2ch.
(VD = 24V,THD = 1%, SE) at a 4 Ω load.

Item	Symbol	Terminal		GAIN Value
		GAIN1	GAIN2	
GAIN	G1	L	L	15.5 dB
	G2	H	L	21.5 dB
	G3	L	H	27.5 dB
	G4	H	H	31.5 dB

6. TDA1616


RF in
Antenna
power
AGC
AGC
33V
PLL
+5V
SAW
3
2
1
4
5
6
7
8
9
10
11

Wiring diagram



Trouble shooting

1. Fault clearance

Before servicing please check to find the possible causes of the troubles according to the table below.

1.1 Antenna (signal):

Picture is out of focus or jumping	● Bad status in signal receiving ● Poor signal ● Check if there are failures with the electrical connector or the antenna. ● Check if the antenna is properly connected.
Fringe in picture	● Check if the antenna is correctly oriented. ● Maybe there is electric wave reflected from hilltop or building.
Picture is interfered by stripe shaped bright spots	● Possibly due to interference from automobile, train, high voltage transmission line, neon lamp etc. ● Maybe there is interference between antenna and power supply line. Please try to separate them in a longer distance. ● Maybe the shielded-layer of signal wire is not connected properly to the connector.
There appear streaks or light color on the screen	● Check if interfered by other equipment and if interfered possibly by the equipment like transmitting antenna, non-professional radio station and cellular phone.

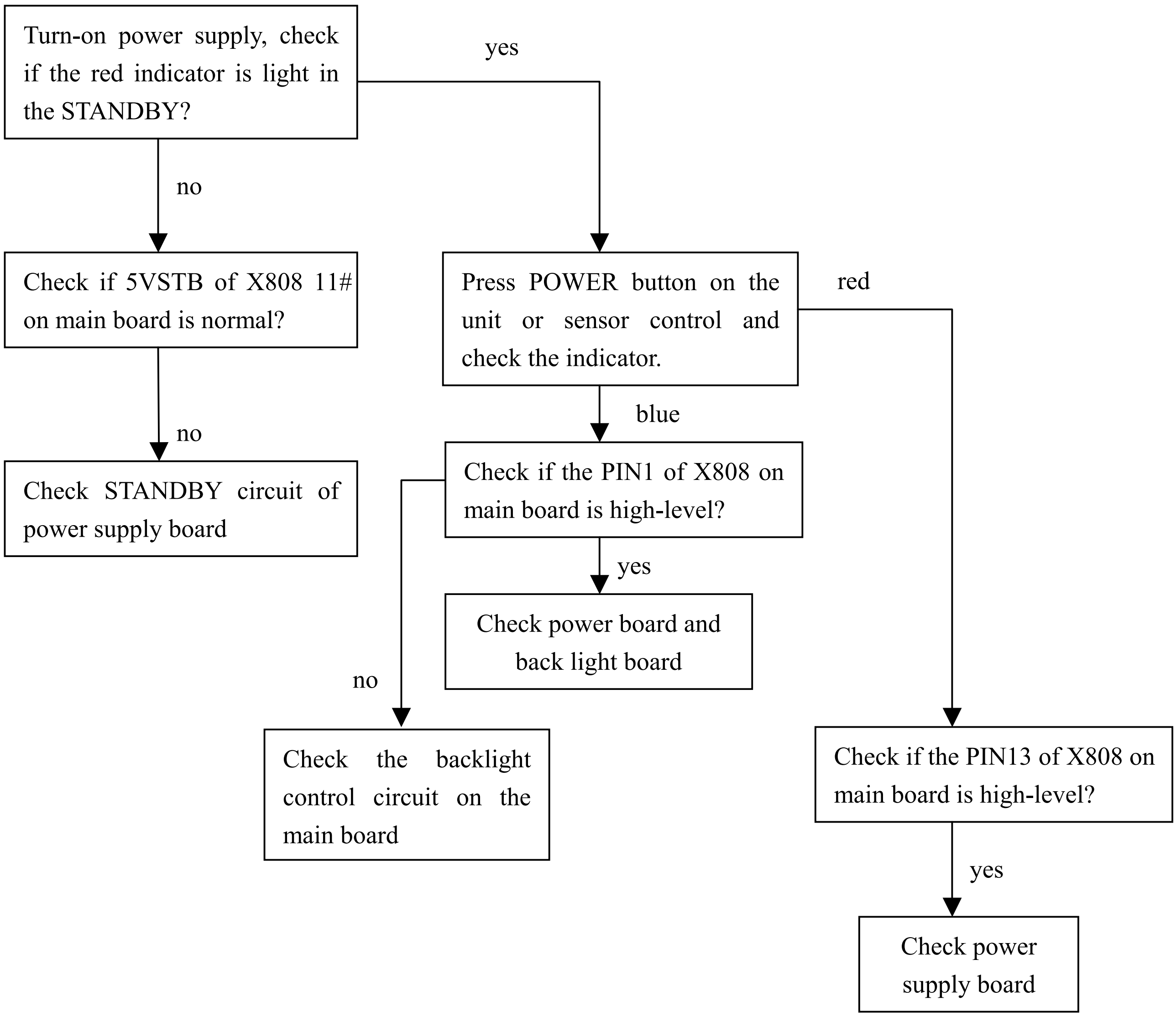
1.2 TV set:

Symptoms	Possible cause
Unable to switch the power on	● Check to see if the power plug has been inserted properly into the socket.
No picture and sound	● Check to see if the power supply of liquid crystal TV has been switched on. (As can be indicated by the red LED at the front of the TV set) ● See if it’s receiving the signal that is transmitted from other source than the station ● Check if it’s connected to the wrong terminal or if the input mode is correct. ● Check if the signal cable connection between video frequency source and the liquid crystal TV set is correct.
Deterioration of color phase or color tone	● Check if all the picture setups have been corrected.
Screen position or size is not proper	● Check is the screen position and size is correctly set up.
Picture is twisted and deformed	● Check to see if the picture-frame ratio is properly set up.
Picture color changed or colorless	● Check the “Component” or “RGB” settings of the liquid

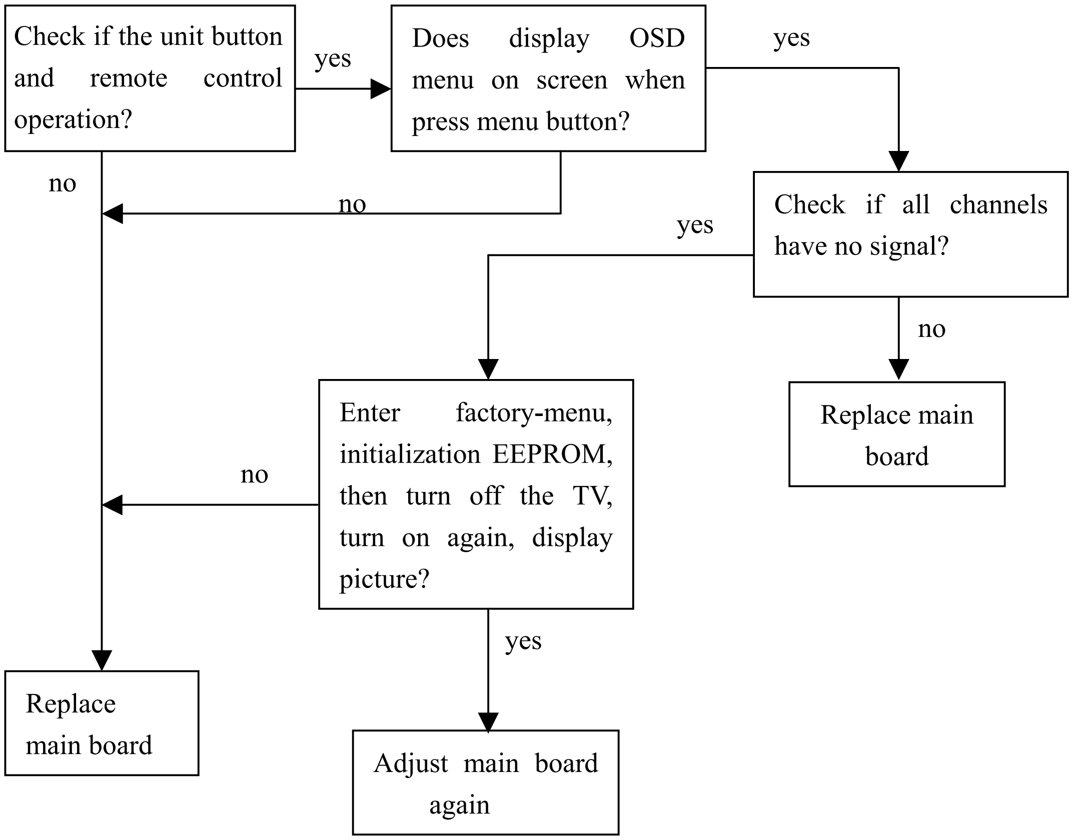
	crystal TV set and make proper adjustment according to the signal types.
Picture too bright and there is distortion in the brightest area	● Check if the contrast setting is too high. ● Possibly the output quality of DVD broadcaster is set too high. ● It maybe also due to improper terminal connection of the video frequency signal in a certain position of the system.
Picture is whitish or too bright in the darkest area of the picture	● Check if the setting for the brightness is too high ● Possibly the brightness grade of DVD player (broadcaster) is set too high.
No picture or signal produced from the displayer if "XXX in search" appears.	● Check if the cable is disconnected. ● Check if it's connected to the proper terminal or if the input mode is correct.
There appears an indication - "outside the receivable scope)	● Check if the TV set can receive input signal. The signal is not correctly identified and VGA format is beyond the specified scope.
Remote control cannot work properly	● Check if the batteries are installed in the reverse order. ● Check if the battery is effective. ● Check the distance or angle from the monitor. ● Check if there is any obstruct between the remote control and the TV set. ● Check if the remote control signal- receiving window is exposed to strong fluorescence.
No picture and sound, but only hash.	● Check if the antenna cable is correctly connected, or if it has received the video signal correctly.
Blur picture	● Check if the antenna cable is correctly connected. ● Of if it has received the right video signal.
No sound	● Check if the "mute" audio frequency setting is selected. ● Check if the sound volume is set to minimum. ● Make sure the earphone is not connected. ● Check if the cable connection is loose.
When playing VHS picture search tape, there are lines at the top or bottom of the picture.	● When being played or in pause VHS picture search tape sometimes can't provide stable picture, which may lead to incorrect display of the liquid crystal TV, In this case please press "auto" key on the remote control so as to enable the liquid crystal TV set to recheck the signal and then to display correct picture signal

2. Troubleshooting guide

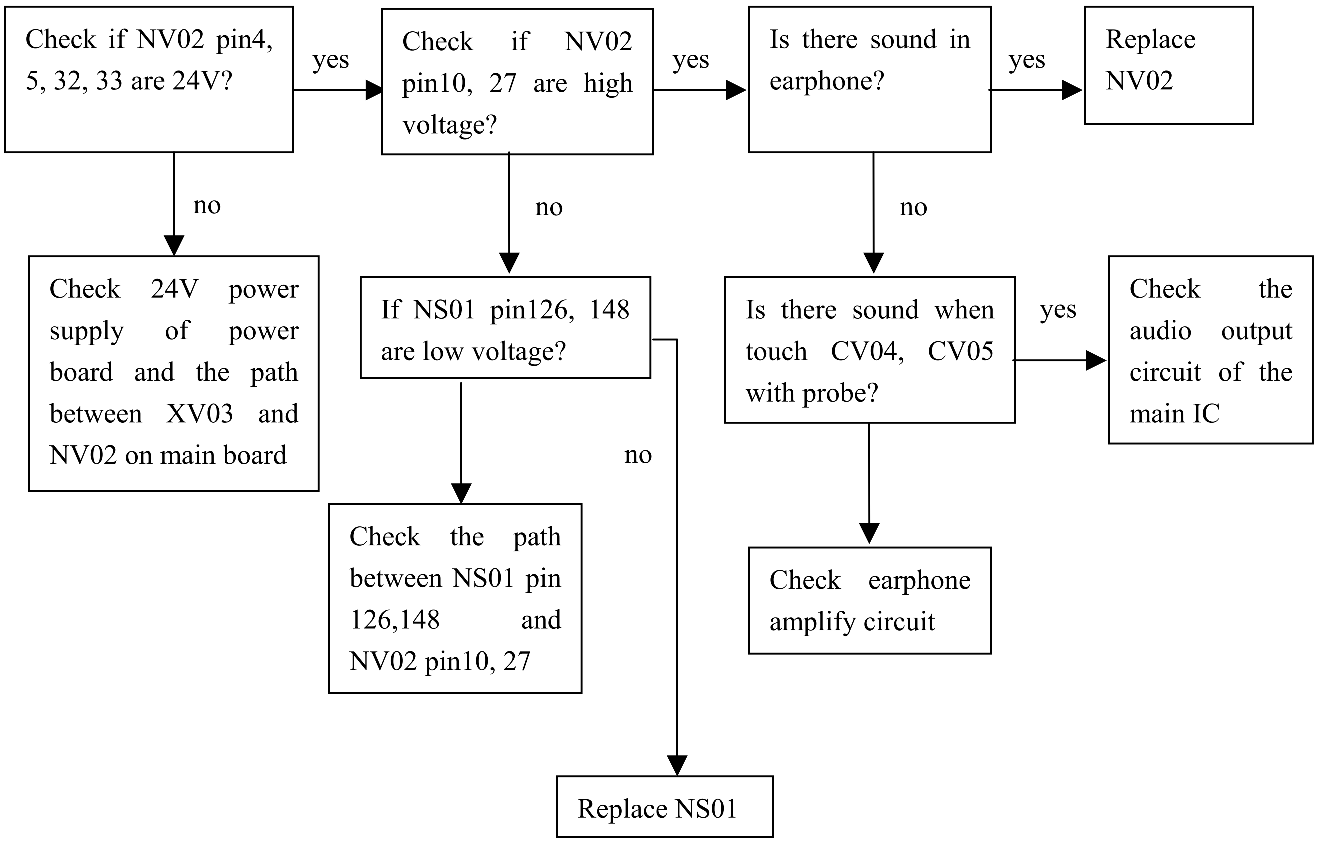
2.1. No raster

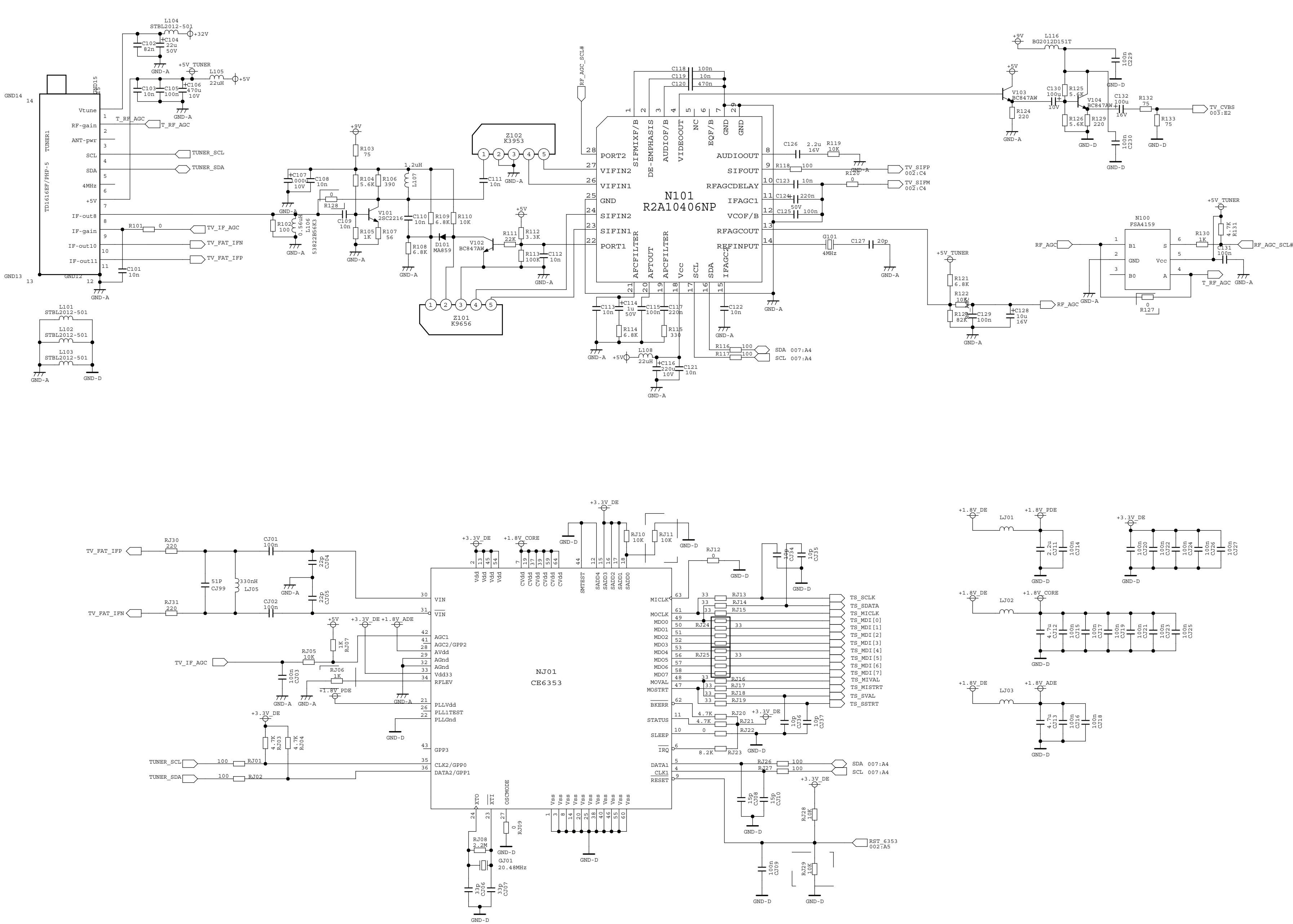


2.2. Backlight, but no picture



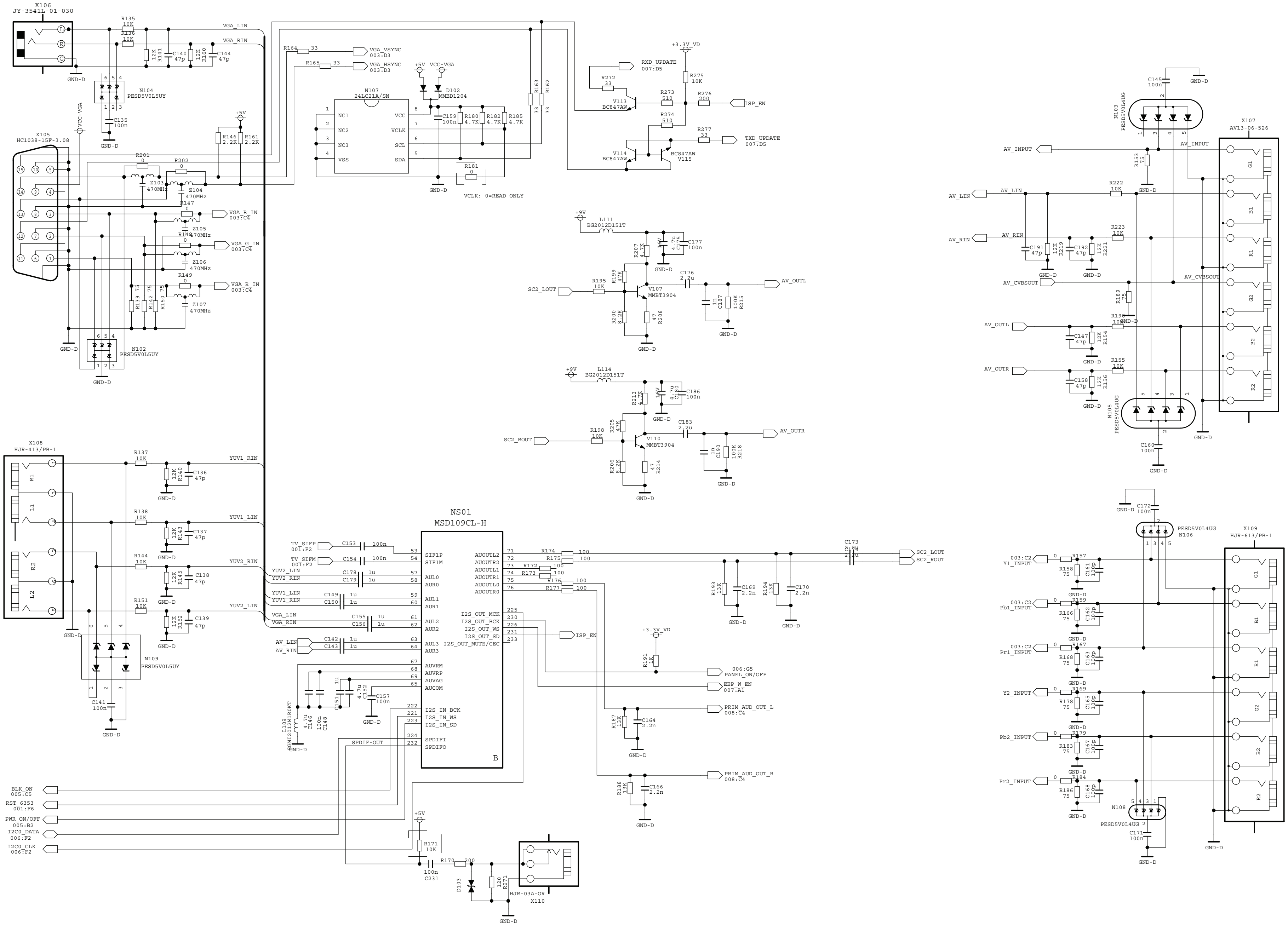
2.3 Picture, but no sound



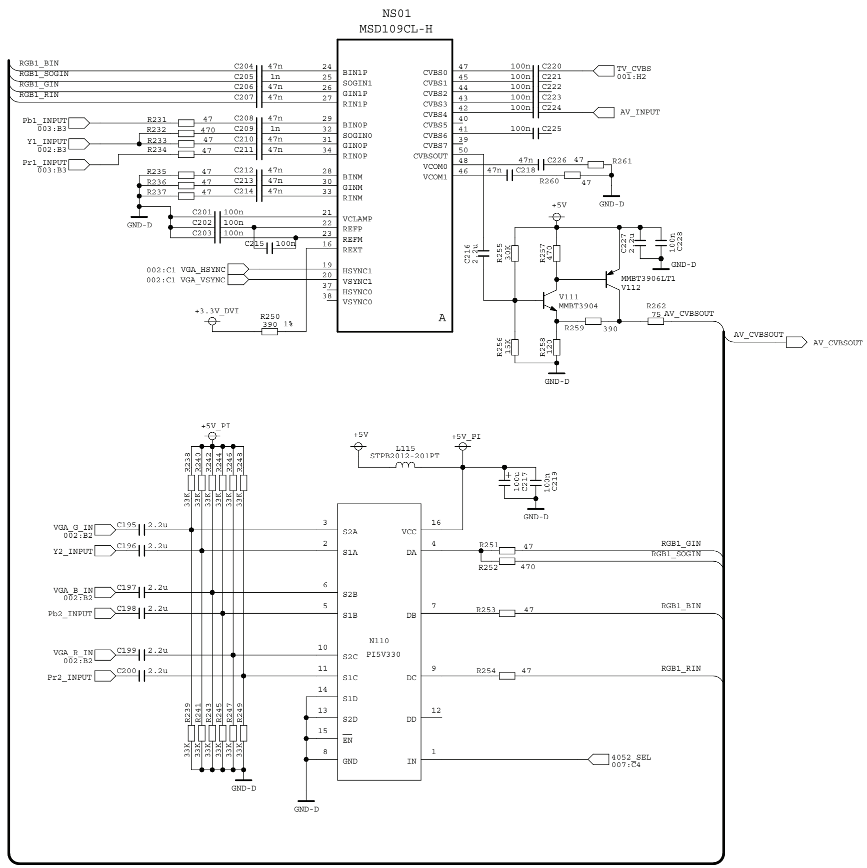


TUNER1
TD1616EF/PHP-5
Vtune
RF-gain
ANT-pwr
SCL
SDA
4MHz
+5V
IF-out8
IF-gain
IF-out10
IF-out11
T_RF_AGC
TUNER_SCL
TUNER_SDA
TV_IF_AGC
TV_FAT_IFN
TV_FAT_IFP
L104
STBL2012-501
+32V
+5V_TUNER
L105
22uH
+5V
Z102
K3953
Z101
K9656
V101
2SC2216
V102
BC847AW
D101
MA859
N101
R2A10406NP
PORT2
VIFIN2
VIFIN1
GND
SIFIN2
SIFIN1
PORT1
SIFMIXF/B
DE-EMPHASIS
AUDIOF/B
VIDEOOUT
NC
EQF/B
AUDIOOUT
SIFOUT
RFAGCDELAY
IFAGC1
VCOF/B
RFAGCOUT
REFINPUT
AFCFILTER
AFTOUT
APCFILTER
Vcc
IFAGC2
RF_AGC_SCL#
TV_SIFP
002:C4
TV_SIFM
002:C4
G101
4MHz
SDA 007:A4
SCL 007:A4
+9V
L116
BG2012D151T
V103
BC847AW
V104
BC847AW
TV_CVBS
003:E2
N100
FSA4159
RF_AGC
T_RF_AGC
RF_AGC_SCL#
GND-A
GND-D
NJ01
CE6353
VIN
AGC1
AGC2/GPP2
AVdd
AGnd
Vdd33
RFLEV
PLLVdd
PLLTEST
PLLGnd
GPP3
CLK2/GPP0
DATA2/GPP1
XTO
XTI
OSCMODE
GJ01
20.48MHz
SWTEST
MICLK
MOCLK
MDO0
MDO1
MDO2
MDO3
MDO4
MDO5
MDO6
MDO7
MOVAL
MOSTRT
BKERR
STATUS
SLEEP
IRQ
DATA1
CLK1
RESET
TS_SCLK
TS_SDATA
TS_MICLK
TS_MDI[0]
TS_MDI[1]
TS_MDI[2]
TS_MDI[3]
TS_MDI[4]
TS_MDI[5]
TS_MDI[6]
TS_MDI[7]
TS_MIVAL
TS_MISTRT
TS_SVAL
TS_SSTRT
RST_6353
002:A5
+3.3V_DE
+1.8V_CORE
+1.8V_PDE
+1.8V_ADE
+1.8V_DE
LJ01
LJ02
LJ03

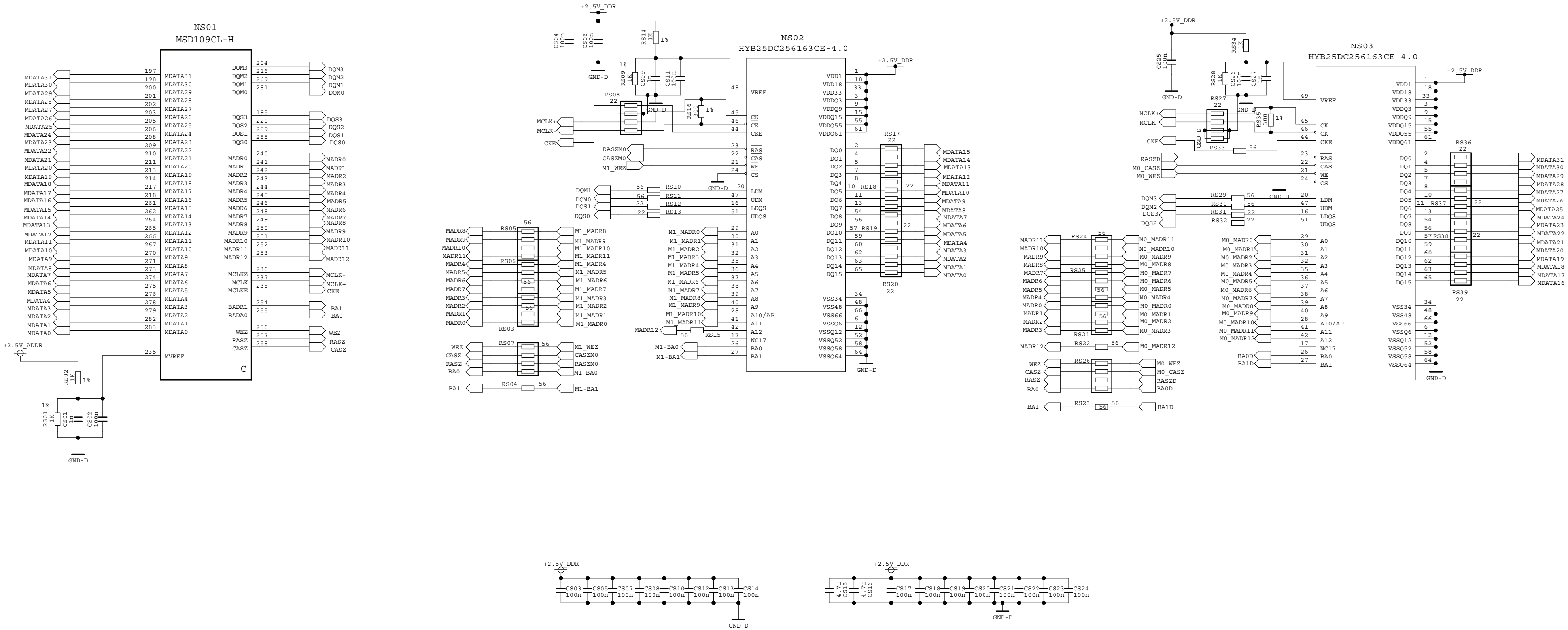
TUNER+IF


X106
JY-3541L-01-030
X105
HC1038-15F-3.08
X108
HJR-413/PB-1
N107
24LC21A/SN
VCLK: 0=READ ONLY
NS01
MSD109CL-H
V107
MMBT3904
V110
MMBT3904
V113
BC847AW
V114
BC847AW
V115
BC847AW
X107
AV13-06-526
X109
HJR-613/PB-1
X110
HJR-03A-OR
VGA_LIN
VGA_RIN
VGA_VSYNC
VGA_HSYNC
VGA_B_IN
VGA_G_IN
VGA_R_IN
YUV1_RIN
YUV1_LIN
YUV2_RIN
YUV2_LIN
RXD_UPDATE
TXD_UPDATE
ISP_EN
SC2_LOUT
SC2_ROUT
AV_OUTL
AV_OUTR
AV_INPUT
AV_LIN
AV_RIN
AV_CVBSOUT
TV_SIFP
TV_SIFM
PANEL_ON/OFF
EEP_W_EN
PRIM_AUD_OUT_L
PRIM_AUD_OUT_R
SPDIF-OUT
BLK_ON
RST_6353
PWR_ON/OFF
I2C0_DATA
I2C0_CLK
Y1_INPUT
Pb1_INPUT
Pr1_INPUT
Y2_INPUT
Pb2_INPUT
Pr2_INPUT
GND-D

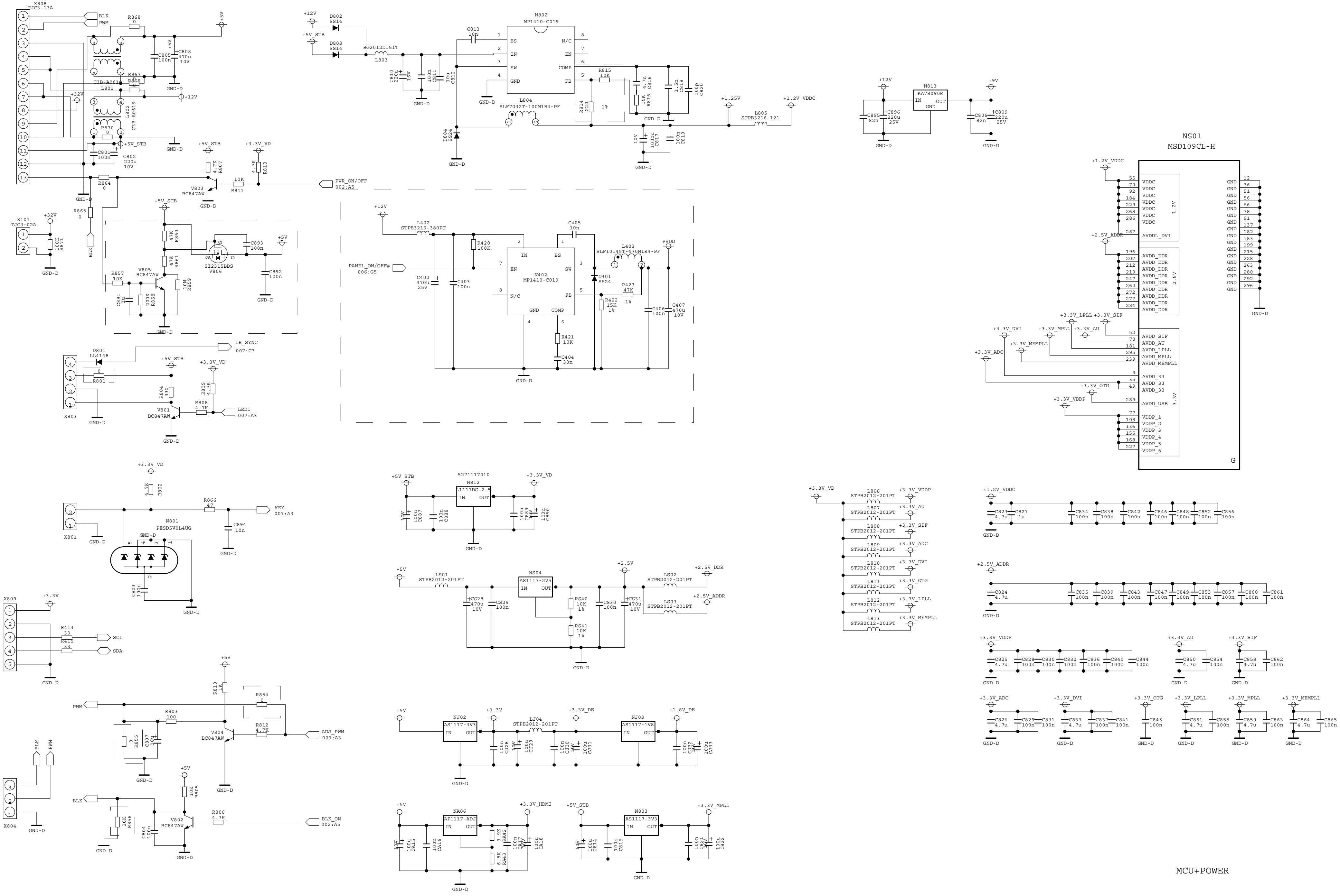
AUDIO IN/OUT



VIDEO IN/OUT


NS01
MSD109CL-H
NS02
HYB25DC256163CE-4.0
NS03
HYB25DC256163CE-4.0

DDR MEMORY



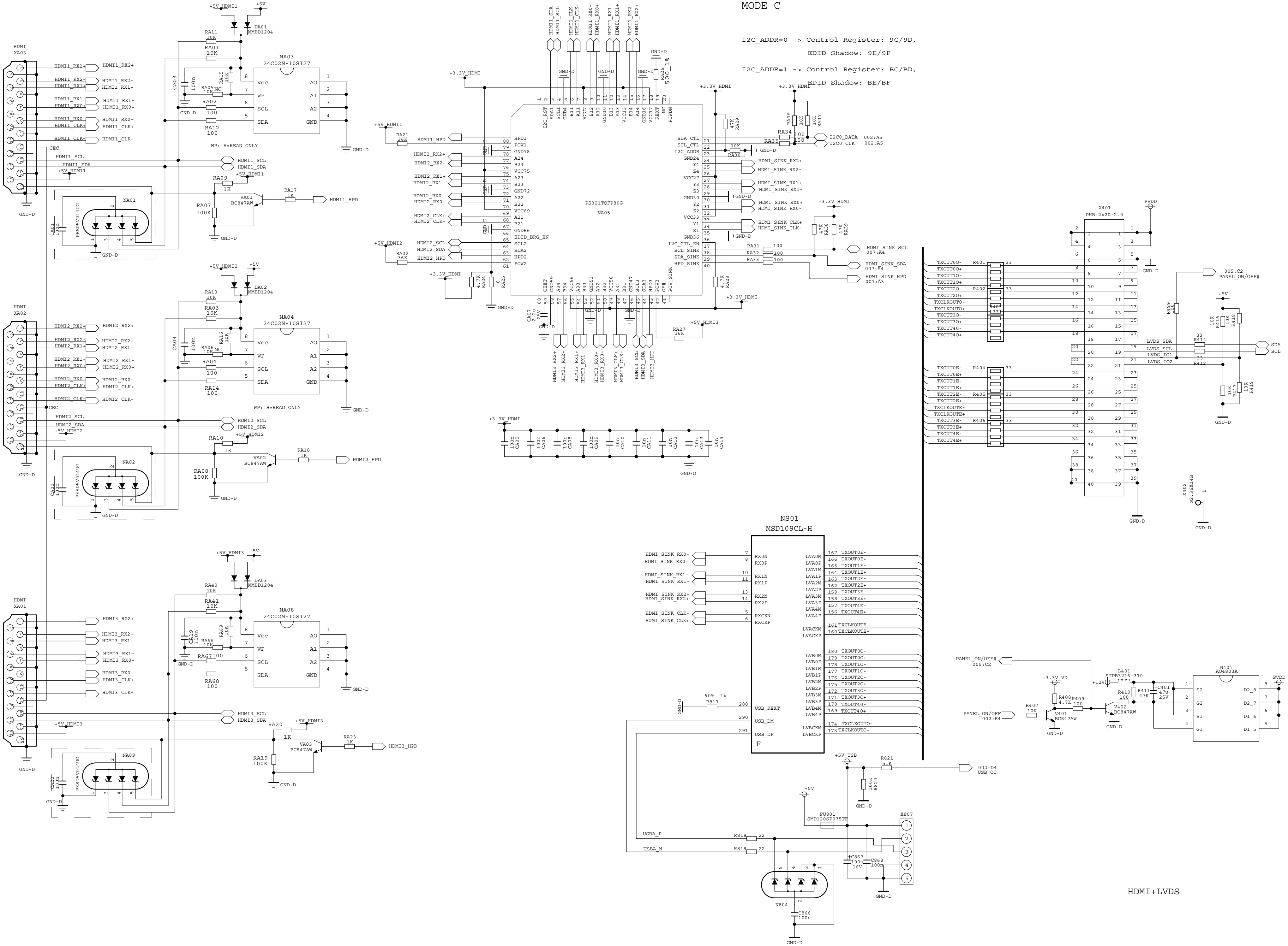
X808
TJC3-13A
BLK
PWM
R868
+5V
C805 100n
C808 470u 10V
GND-D
C3B-A0619
L801
R867
R869
+12V
+32V
L802
C3B-A0619
R870
+5V_STB
C801 100n
C802 220u 10V
R864 0
R865 0
X101
TJC3-02A
R871 100K
V803 BC847AW
R807 4.7K
R811 10K
R813 4.7K
+3.3V_VD
PWR_ON/OFF 002:A5
R860 47K
R861 47K
SI2315BDS
V806
C893 100n
C892 100n
R857 10K
V805 BC847AW
C891 1u
R858 200K
R859 10M
D801 LL4148
IR_SYNC 007:C3
R801 0
R804 330
R809 4.7K
V801 BC847AW
R808 4.7K
LED1 007:A3
X803
+12V
D802 SS14
D803 SS14
BG2012D151T
L803
C810 220u 16V
C811 10n
C812 10u
C813 10n
N802
MP1410-C019
BS
IN
SW
GND
N/C
EN
COMP
FB
R815 10K
C816 4.7n
R816 15K
C818 1.5n
C820 100p
R814 22K
1%
L804
SLF7032T-100M1R4-PF
D804 SS24
+1.25V
+1.2V_VDDC
L805
STPB3216-121
C817 1000u 10V
C819 100n
N813
KA78090R
IN OUT
+9V
C895 82n
C896 220u 25V
C806 82n
C809 220u 25V
NS01
MSD109CL-H
+1.2V_VDDC
VDDC
AVDDL_DVI
1.2V
+2.5V_ADDR
AVDD_DDR
2.5V
+3.3V_LPLL +3.3V_SIF
+3.3V_DVI
+3.3V_MPLL
+3.3V_AU
+3.3V_MEMPLL
+3.3V_ADC
AVDD_SIF
AVDD_AU
AVDD_LPLL
AVDD_MPLL
AVDD_MEMPLL
AVDD_33
+3.3V_OTG
AVDD_USB
+3.3V_VDDP
VDDP_1
VDDP_2
VDDP_3
VDDP_4
VDDP_5
VDDP_6
3.3V
GND
G
L402
STPB3216-380PT
R420 100K
PANEL_ON/OFF# 006:G5
C402 470u 25V
C403 100n
N402
MP1410-C019
C405 10n
L403
SLF10145T-470M1R4-PF
PVDD
D401 SS24
R422 15K 1%
R423 47K 1%
C406 100n
C407 470u 10V
R421 10K
C404 33n
+3.3V_VD
R802 4.7K
R866 47
KEY 007:A3
X801
C894 10n
N801
PESD5V0L4UG
C803 100n
X809
+3.3V
R413 33
R415 33
SCL
SDA
5271117010
N812
LD1117DG-2.5
C887 100u
C888 100n
C889 100n
C890 100u
LS01
STPB2012-201PT
NS04
AS1117-2V5
+2.5V
CS28 470u 10V
CS29 100n
RS40 10K 1%
RS41 10K 1%
CS30 100n
CS31 470u 10V
LS02
+2.5V_DDR
LS03
+2.5V_ADDR
NJ02
AS1117-3V3
+3.3V
LJ04
STPB2012-201PT
+3.3V_DE
NJ03
AS1117-1V8
+1.8V_DE
NA06
AP1117-ADJ
+3.3V_HDMI
RA42 3.9K
RA43 6.8K
N803
AS1117-3V3
+3.3V_MPLL
PWM
R803 100
R855 0
C807 10u
R810 1K
R854 0
R812 4.7K
V804 BC847AW
ADJ_PWM 007:A3
X804
BLK
R805 10K
R856 20K
C804 100n
V802 BC847AW
R806 4.7K
BLK_ON 002:A5
L806
L807
L808
L809
L810
L811
L812
L813
STPB2012-201PT
+3.3V_VDDP
+3.3V_AU
+3.3V_SIF
+3.3V_ADC
+3.3V_DVI
+3.3V_OTG
+3.3V_LPLL
+3.3V_MEMPLL
+1.2V_VDDC
C823 4.7u
C827 1u
+2.5V_ADDR
C824 4.7u
+3.3V_VDDP
C825 4.7u
+3.3V_AU
C850 4.7u
+3.3V_SIF
C858 4.7u
+3.3V_ADC
C826 4.7u
+3.3V_DVI
C833 4.7u
+3.3V_OTG
C845 100n
+3.3V_LPLL
C851 4.7u
+3.3V_MPLL
C859 4.7u
+3.3V_MEMPLL
C864 4.7u

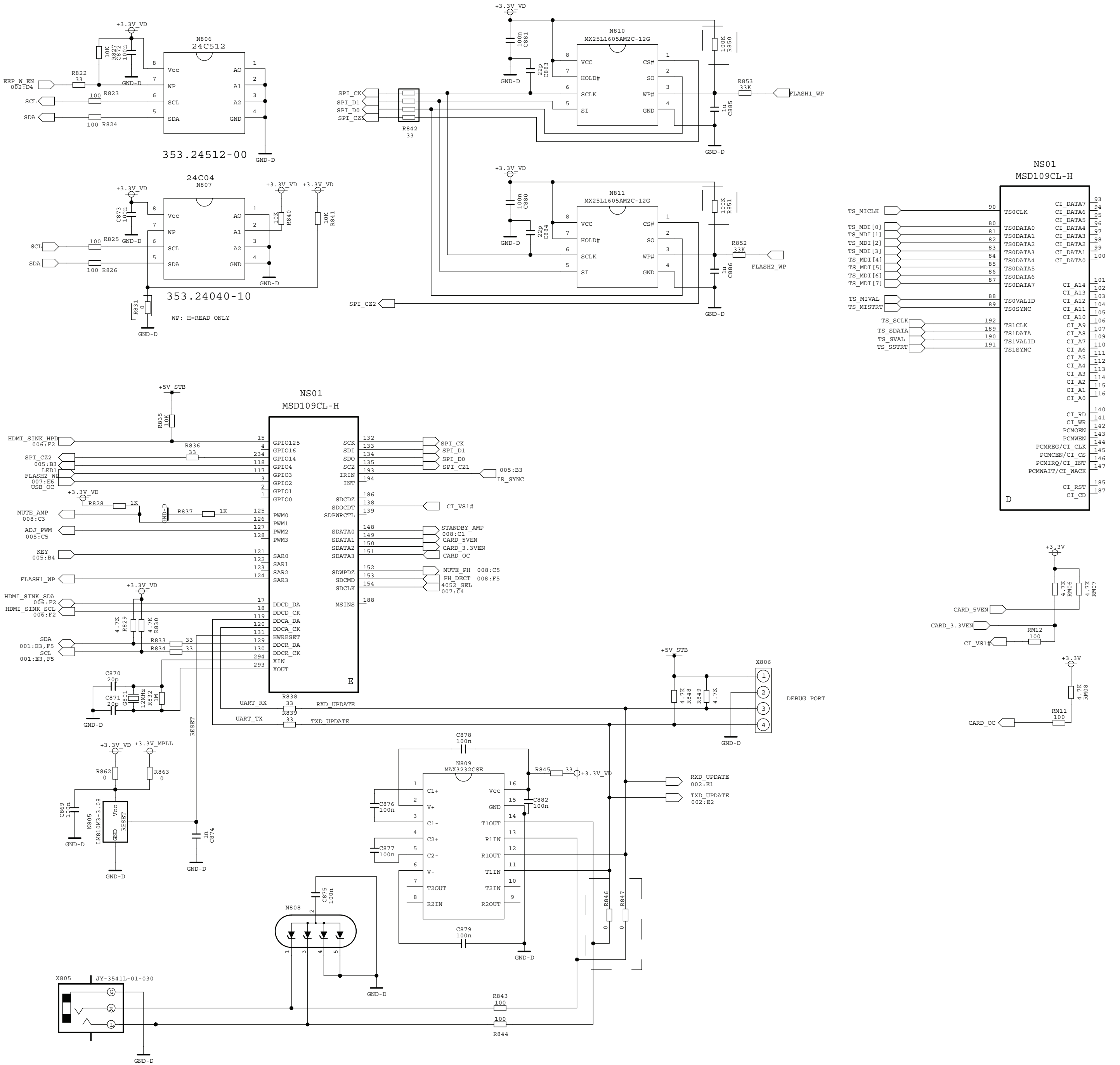
MCU+POWER

MODE C

I2C_ADDR=0 -> Control Register: 9C/9D,
EDID Shadow: 9E/9F

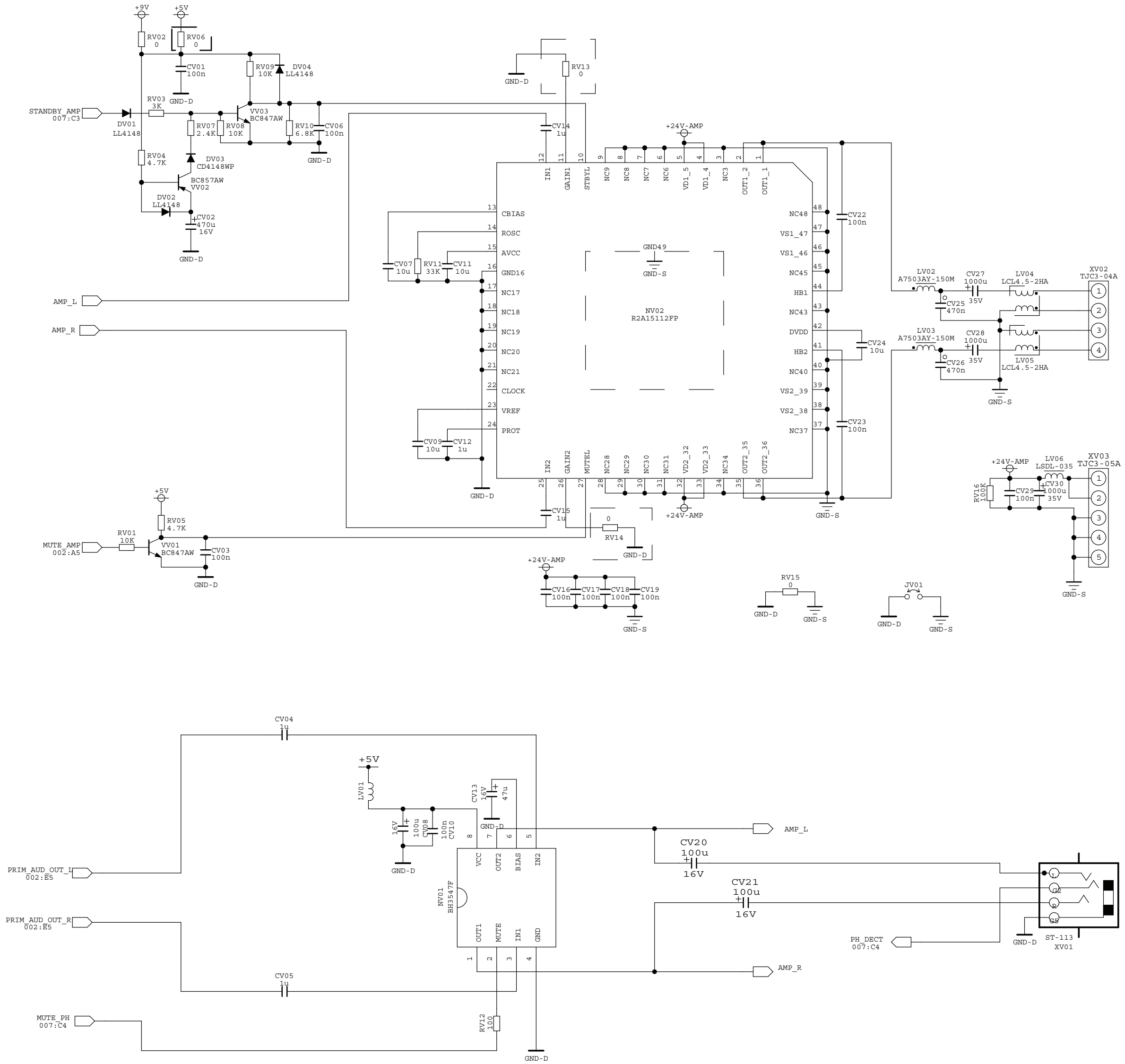
I2C_ADDR=1 -> Control Register: BC/BD,
EDID Shadow: BE/BF





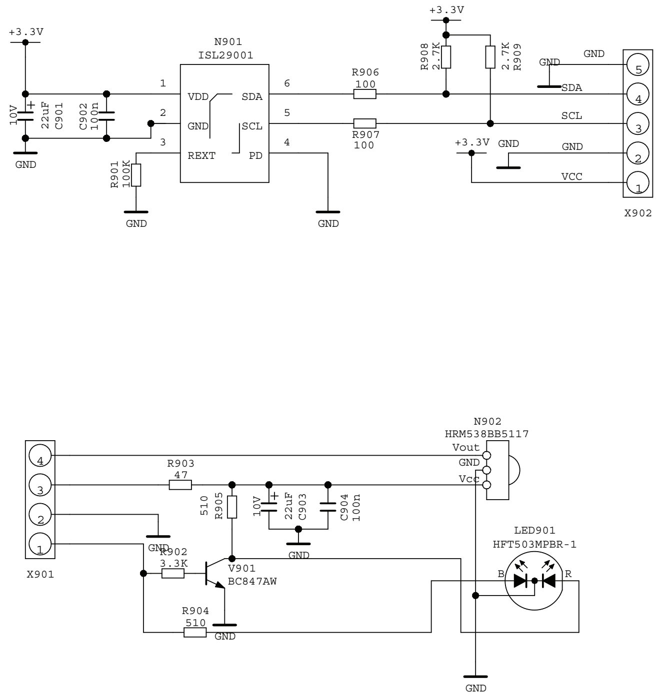
N806
24C512
353.24512-00
24C04
N807
353.24040-10
WP: H=READ ONLY
N810
MX25L1605AM2C-12G
N811
MX25L1605AM2C-12G
R842
33
FLASH1_WP
FLASH2_WP
SPI_CK
SPI_D1
SPI_D0
SPI_CZ
SPI_CZ2
NS01
MSD109CL-H
GPIO125
GPIO16
GPIO14
GPIO4
GPIO3
GPIO2
GPIO1
GPIO0
PWM0
PWM1
PWM2
PWM3
SAR0
SAR1
SAR2
SAR3
DDCD_DA
DDCD_CK
DDCA_DA
DDCA_CK
HWRESET
DDCR_DA
DDCR_CK
XIN
XOUT
SCK
SDI
SDO
SCZ
IRIN
INT
SDCDZ
SDOCDT
SDPWRCTL
SDATA0
SDATA1
SDATA2
SDATA3
SDWPDZ
SDCMD
SDCLK
MSINS
HDMI_SINK_HPD
MUTE_AMP
ADJ_PWM
KEY
FLASH1_WP
HDMI_SINK_SDA
HDMI_SINK_SCL
SDA
SCL
IR_SYNC
CI_VS1#
STANDBY_AMP
CARD_5VEN
CARD_3.3VEN
CARD_OC
MUTE_PH
PH_DECT
4052_SEL
UART_RX
UART_TX
RXD_UPDATE
TXD_UPDATE
X806
DEBUG PORT
N809
MAX3232CSE
N805
LM810M3-3.08
N808
X805
JY-3541L-01-030
NS01
MSD109CL-H
TS0CLK
TS0DATA0
TS0DATA1
TS0DATA2
TS0DATA3
TS0DATA4
TS0DATA5
TS0DATA6
TS0DATA7
TS0VALID
TS0SYNC
TS1CLK
TS1DATA
TS1VALID
TS1SYNC
CI_DATA7
CI_DATA6
CI_DATA5
CI_DATA4
CI_DATA3
CI_DATA2
CI_DATA1
CI_DATA0
CI_A14
CI_A13
CI_A12
CI_A11
CI_A10
CI_A9
CI_A8
CI_A7
CI_A6
CI_A5
CI_A4
CI_A3
CI_A2
CI_A1
CI_A0
CI_RD
CI_WR
PCMOEN
PCMWEN
PCMREG/CI_CLK
PCMCEN/CI_CS
PCMIRQ/CI_INT
PCMWAIT/CI_WACK
CI_RST
CI_CD
TS_MICLK
TS_MIVAL
TS_MISTRT
TS_SCLK
TS_SDATA
TS_SVAL
TS_SSTRT

MISC+PCMCIA

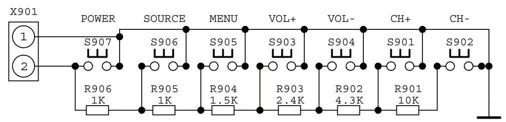


+5V
RV02
RV06
CV01
100n
GND-D
RV09
10K
DV04
LL4148
STANDBY_AMP
007:C3
DV01
LL4148
RV03
3K
VV03
BC847AW
RV07
2.4K
RV08
10K
RV10
6.8K
CV06
100n
RV04
4.7K
DV03
CD4148WP
BC857AW
VV02
DV02
LL4148
CV02
470u
16V
RV13
CV14
1u
+24V-AMP
AMP_L
AMP_R
CBIAS
ROSC
AVCC
GND16
NC17
NC18
NC19
NC20
NC21
CLOCK
VREF
PROT
CV07
10u
RV11
33K
CV11
10u
CV09
10u
CV12
1u
IN1
GAIN1
STBYL
NC9
NC8
NC7
NC6
VD1_5
VD1_4
NC3
OUT1_2
OUT1_1
GND49
GND-S
NV02
R2A15112FP
NC48
VS1_47
VS1_46
NC45
HB1
NC43
DVDD
HB2
NC40
VS2_39
VS2_38
NC37
CV22
100n
CV24
10u
CV23
100n
IN2
GAIN2
MUTEL
NC28
NC29
NC30
NC31
VD2_32
VD2_33
NC34
OUT2_35
OUT2_36
CV15
1u
RV14
LV02
A7503AY-150M
CV27
1000u
35V
CV25
470n
LV04
LCL4.5-2HA
XV02
TJC3-04A
LV03
A7503AY-150M
CV28
1000u
35V
CV26
470n
LV05
LCL4.5-2HA
+24V-AMP
LV06
LSDL-035
XV03
TJC3-05A
RV16
100K
CV29
100n
CV30
1000u
35V
+5V
RV05
4.7K
MUTE_AMP
002:A5
RV01
10K
VV01
BC847AW
CV03
100n
CV16
100n
CV17
100n
CV18
100n
CV19
100n
RV15
JV01
CV04
1u
LV01
CV13
16V
47u
16V
100u
CV08
100n
CV10
VCC
OUT2
BIAS
IN2
NV01
BH3547F
OUT1
MUTE
IN1
GND
PRIM_AUD_OUT_L
002:E5
PRIM_AUD_OUT_R
002:E5
CV05
1u
MUTE_PH
007:C4
RV12
100
CV20
100u
16V
CV21
100u
16V
PH_DECT
007:C4
ST-113
XV01

AUDIO AMP

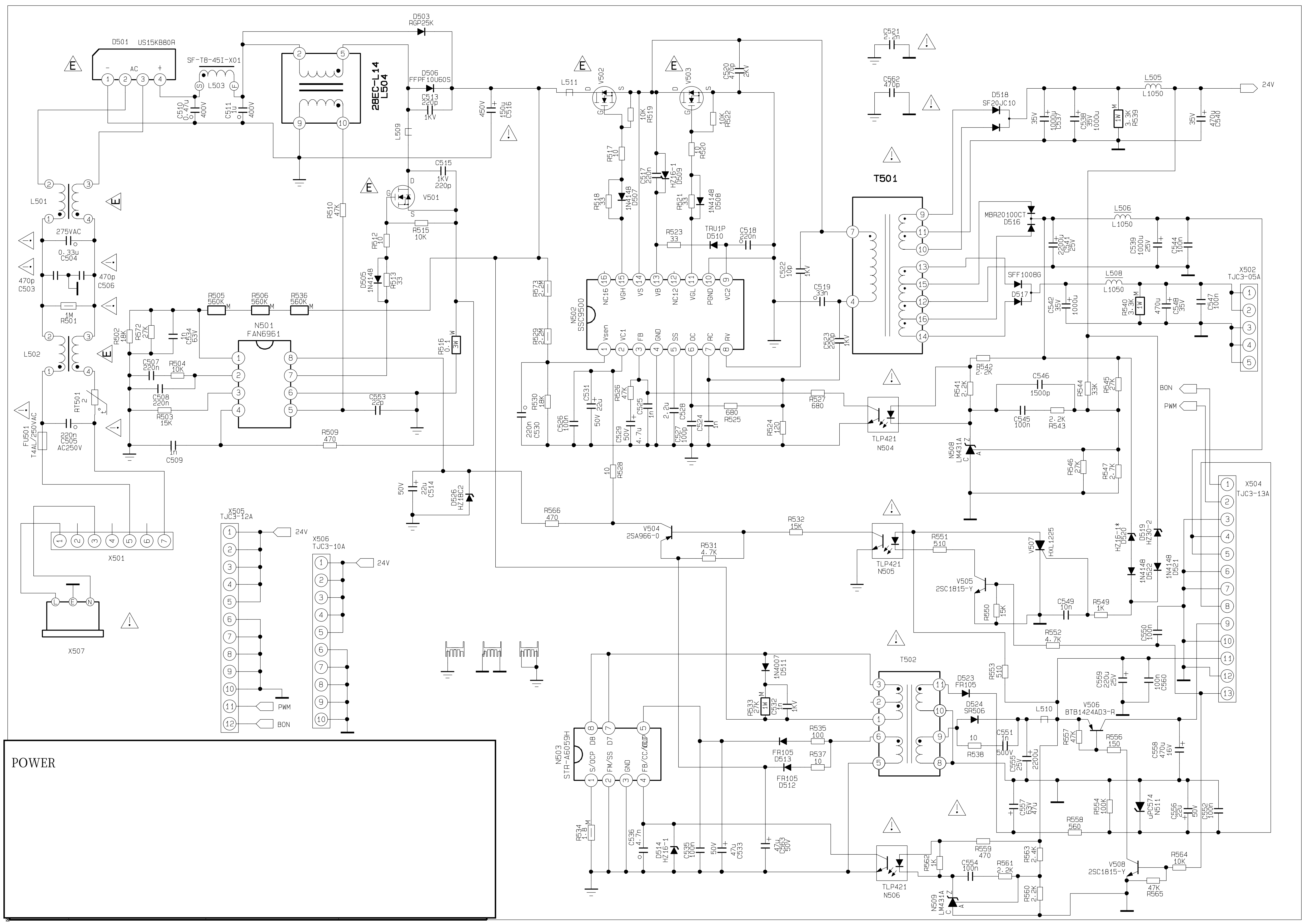

N901
ISL29001
VDD
GND
REXT
SDA
SCL
PD
+3.3V
10V
22uF
C901
C902
100n
R901
100K
GND
R906
100
R907
100
R908
2.7K
R909
2.7K
SDA
SCL
GND
VCC
X902
N902
HRM538BB5117
Vout
Vcc
R903
47
R905
510
C903
C904
R902
3.3K
V901
BC847AW
R904
LED901
HFT503MPBR-1
B
R
X901

IR


X901
POWER
SOURCE
MENU
VOL+
VOL-
CH+
CH-
S907
S906
S905
S903
S904
S901
S902
R906
1K
R905
1K
R904
1.5K
R903
2.4K
R902
4.3K
R901
10K

KEY

IR, KEY

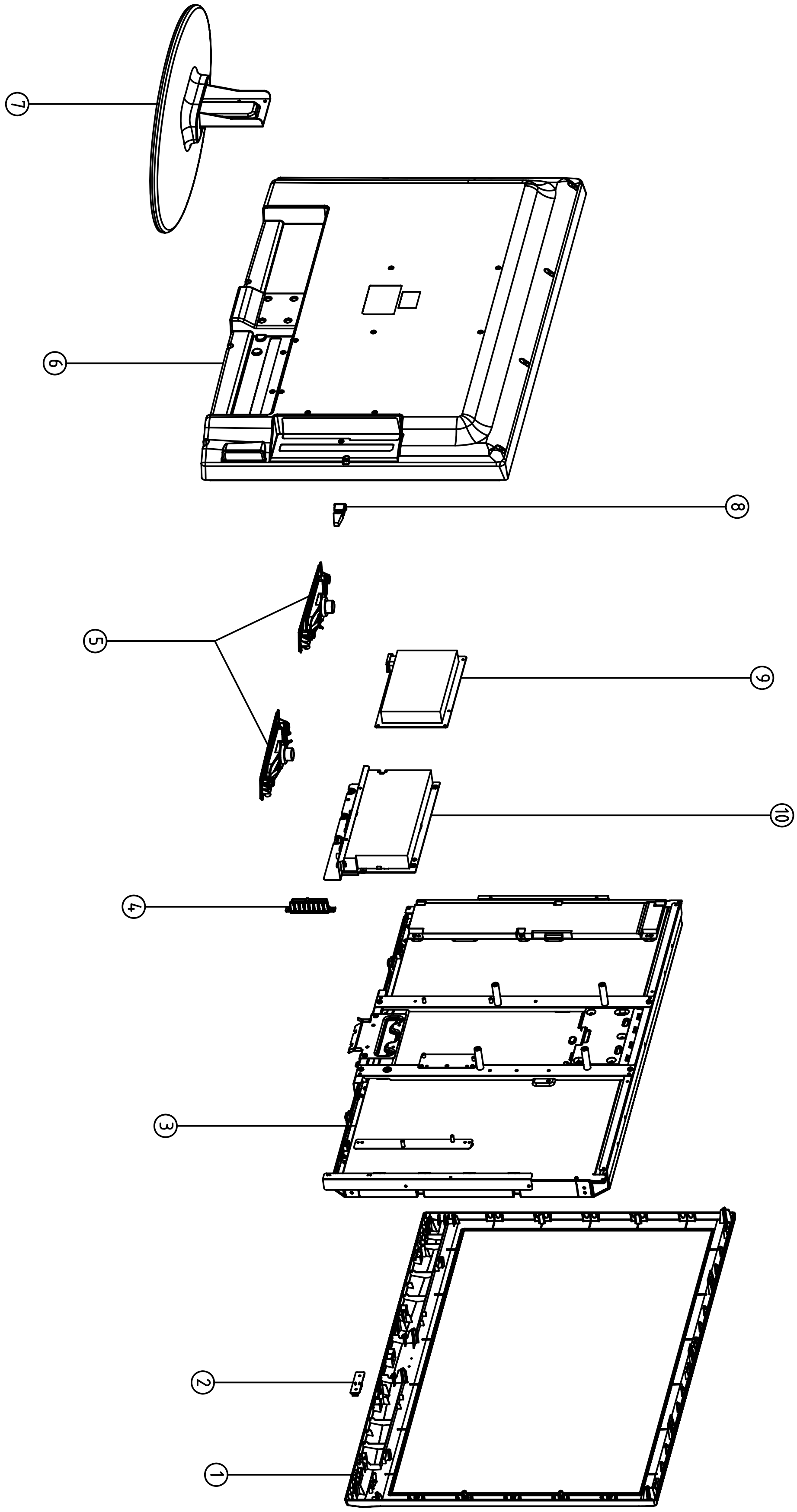


A
B
C
D
E
F
1
2
3
4
D501 US15KB80R
SF-T8-45I-X01
L503
C510 0.47u 400V
C511 1u 400V
D503 RGP25K
D506 FFPF10U60S
C513 330p 1KV
28EC-L14 L504
L509
C516 150u 450V
L501
275VAC
C504 0.33u
470p C503
470p C506
1M R501
L502
RT501
FU501 T4AL/250VAC
C505 220n AC250V
C515 1KV 220p
V501
R510 47K
R515 10K
R512 10
D505 1N4148
R513 33
R505 560K
R506 560K
R536 560K
N501 FAN6961
R502 18K
R572 27K
C534 1n 63V
C507 220n
R504 10K
C508 220n
R503 15K
C509 1n
R509 470
C553 22n
R516 0.1 3W
C514 22u 50V
D526 HZ18C2
X501
X507
X505 TJC3-12A
24V
PWM
BON
X506 TJC3-10A
L511
V502
V503
R519 10K
R522 10K
C520 470p 2KV
R517 10
R520 10
C517 220n
D509 HZ16-1
R518 33
D507 1N4148
R521 33
D508 1N4148
R523 33
TRU1P D510
C518 22n
C522 10p 1KV
C519 33n
N502 SSC9500
NC16
VGH
VS
VB
NC12
VGL
PGND
VC2
Vsen
VC1
FB
GND
SS
OC
RC
RV
R573 2.2M
R529 2.2M
R530 18K
C530 220n
C526 100n
C531 22u 50V
R526 47K
C525 1n
C529 4.7u 50V
C528 2.2u
C527 100p
C524 1n
R525 680
R524 120
R527 680
C523 220p 1KV
R528 10
R566 470
V504 2SA966-O
R531 4.7K
R532 15K
C521 2.2n
C562 470p
T501
D518 SF20JC10
C537 1000u 35V
C538 1000u 35V
R539 3.3K 1W
L505 L1050
C540 470u 35V
MBR20100CT D516
L506 L1050
C541 2200u 25V
C539 1000u 25V
C544 100n
SFF1008G D517
L508 L1050
C542 1000u 35V
R540 3.3K 1W
C548 470u 35V
C547 100n
X502 TJC3-05A
R542 2.2K
C546 1500p
R541 2.2K
R544 33K
R545 27K
C545 100n
R543 2.2K
TLP421 N504
N508 LM431A
R546 27K
R547 2.7K
TLP421 N505
R551 510
V507 HXL1225
V505 2SC1815-Y
R550 15K
C549 10n
R549 1K
R552 4.7K
D520 HZ16-1
D519 HZ30-2
D522 1N4148
D521 1N4148
BON
PWM
X504 TJC3-13A
C550 100n
T502
D511 1N4007
R533 27K
C532 1n 1KV
N503 STR-A6059H
S/OCP
FM/SS
GND
FB/CC/OLP
D8
D7
R535 100
D513 FR105
R537 10
D512 FR105
D523 FR105
D524 SR506
R553 510
C559 220u 25V
C560 100n
L510
V506 BTB1424AD3-R
R538 10
C551 1n 500V
C555 2200u 25V
R557 47K
R556 150
C558 470u 16V
C557 47u 63V
R554 100K
N511 uPC574
C556 22u 50V
C552 100n
R558 560
R534 1.8
C536 4.7n
D514 HZ16-1
C535 100n
C533 47u 50V
C563 47u 50V
TLP421 N506
R562 1K
C554 100n
R561 2.2K
R559 470
R563 2.4K
R560 2.2K
N509 LM431A
V508 2SC1815-Y
R564 10K
R565 47K
POWER

APPENDIX-A: Main assembly LCD-37XR9DA(B)

NAME	NO.	MAIN COMPONENT AND IT'S NO.	
Data processing board	XI6HE04069D0	NS01 N101 NJ01 NA5 NV02	MSD109CL (5270109001) R2A10406NP (5271040601) CE6353 (5276353001) PS321TQF (5270321001) R2A15112FP (5271511201)
IR board	XI635HE00300		
Key board	XI635HE00200		
Power board	XI6HE0402010		
Remote control	XI6010J017A1	RC-J17-0A	
Panel	XI5203378307	T370HW03 V5 01	

APPENDIX-B: Exploded view LCD-37XR9DA(B)



PART LIST OF EXPLODED VIEW

NO.	DESCRIPTION
1	Front cabinet
2	IR board
3	Panel
4	Key board
5	Speaker
6	Back cabinet
7	Pedestal base
8	Power switch
9	Power board
10	Data processing board
11	User manual
12	Remote Control

PART LIST

LCD-37XR9DA(B) ver.1.0

REF.No.	PARTS No.	DESCRIPION	Q'TY	REMARK
1	XI6637421030	Front cabinet	1	
2	XI635HE00300	IR board	1	
3	XI5203378307	Panel	1	T370HW03 V5 01
4	XI635HE00200	Key board	1	
5	XI6170816000	Speaker	1	
6	XI673742K020	Back cabinet	1	
7	XI6151191000	Pedestal base	1	
8	XI635HE00301	Power switch	1	
9	XI6HE0402010	Power board	1	
10	XI6HE04069D0	Data processing board	1	
11	XI5944035230	User manual	1	
12	XI6010J017A1	Remote Control	1	

- Only the parts in above list are used for repairing.
- Other parts except the above parts can't be supplied.

Assembling the stand and removing the stand column(Option)

If the stand is provided, please read these instructions thoroughly before attempting this installation.

You must install your TV into the stand in order for it to stand upright on a cabinet or other flat surface. If you intend to mount your TV on a wall or other vertical surface, you must remove the stand column.

Cautions:

Make sure that you handle your TV very carefully when attempting assembly or removal of the stand. If you are not sure of your ability to do this, or of your ability to use the tools necessary to complete this job, refer to a professional installer or service personnel. The manufacturer is not responsible for any damages or injuries that occur due to mishandling or improper assembly.

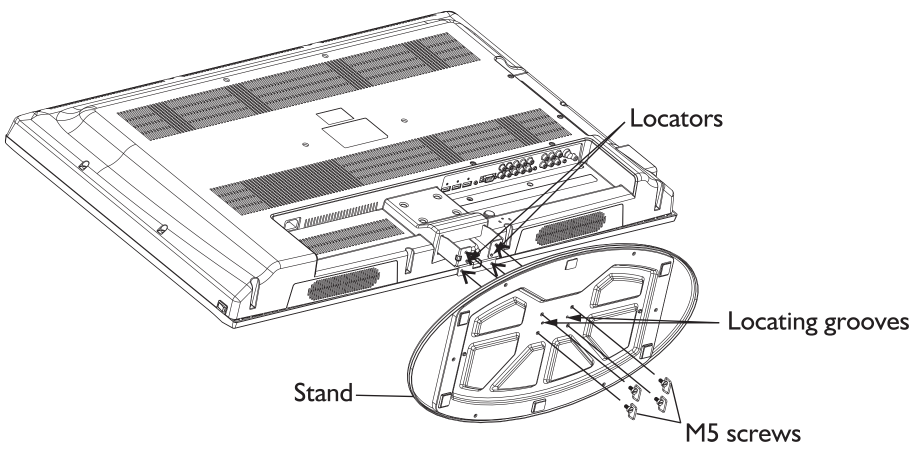
When using a table or bench as an aid to assembly, make sure that you put down a soft cushion or covering to prevent accidental scratching or damage to your TV's finish.

The speaker is not intended to support the weight of your TV. Do not move or handle your TV by the speaker. This can cause damage to your TV that is not covered by the manufacturer's warranty.

Before attempting assembly or removal of the stand, unplug the AC power cord.

To install the stand:

1. Remove the stand from the box and place it on a table or bench.
   You must pay attention to the direction of the stand. The wide portion of the stand should go towards the front of the TV.
2. Lay your TV flat (screen down) on the edge of a table or bench. Make sure that you put down a soft cushion or cloth so that your TV is not scratched.
3. Insert the stand column into the stand socket, move the column steadily until the Locators on the column align with the locating grooves on the stand. And align the holes in the stand with the holes in the stand column, then secure the stand to the column with four M5 screws(provided).

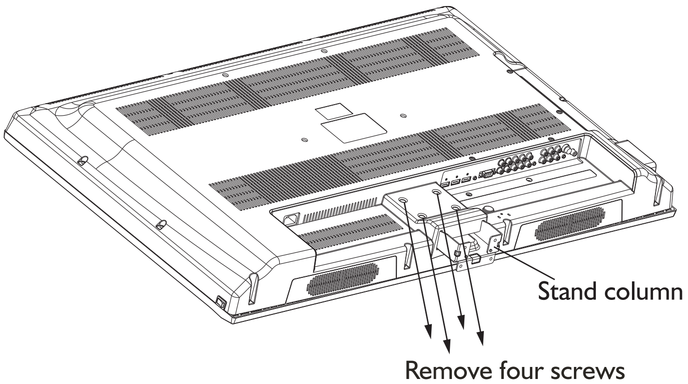


To remove the stand from the TV, perform these steps in reverse order.

To remove the stand column:

1. Lay your TV flat (screen down) on a table or bench. Make sure that you put down a soft cushion or cloth so that your TV is not scratched.

2. Remove the four screws holding the stand column to your TV, then remove the stand column.



NOTE:
The appearance of this product in these illustrations may differ from your actual product, and is for comparative purposes only.

WALL MOUNTING INSTRUCTIONS

Safety Precautions:

1. Be sure to ask an authorized service personnel to carry out setup.
2. Thoroughly read this instruction before setup and follow the steps below precisely.
3. The wall to be mounted should be made from solid materials. Only use accessories supplied by the manufacturer.
4. Very carefully handle the unit during setup. We are not liable for any damage or injury caused by mishandling or improper installation.
5. Be sure to place the unit on a stable and soft platform which is strong enough to support the unit.
6. Do not uplift the speaker when moving the display. The appearance of the unit may different from the actual ones.
7. Design and specifications are subject to change without notice.
8. Retain these instructions for future reference.

Note: All the wall mounting parts are optional and may be unavailable in your model.

Below we will show you how to mount the Display on the wall using our company's wall mounting components.

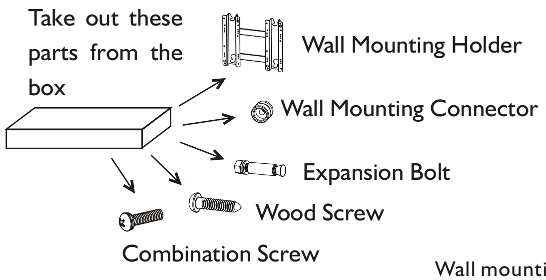


Fig.1

1. There are three options of wall mounting holder with different specifications :200200,200400,200600. Please check your wall mounting holder for its specification.

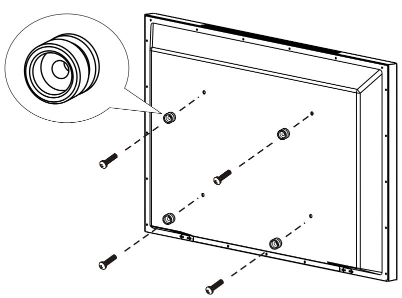


Fig.4

4. Use the 4pcs combination screws to fix the wall mounting connector to the rear of the display unit.(Caution:the direction of the connectors should be strictly confirm to the diagram illustrated above).

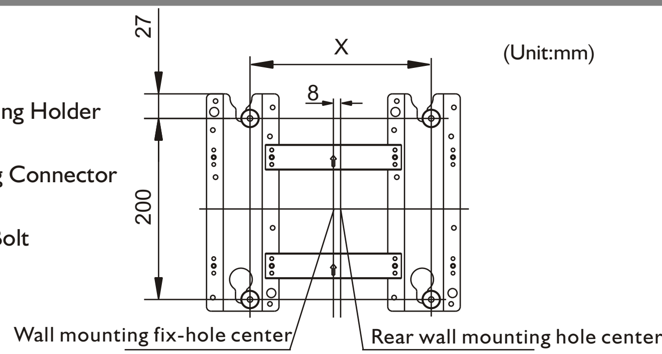


Fig.2

2. Due to the wall mounting fix-groove leaning to the right side, the whole unit will lean to right side after installation, please carefully measure the position of the holes you want to drill, refer to the parameters on Fig.2 when drilling the holes.

Note: The "X" in Fig.2 represents a data. It may be 200mm or 400mm or 600mm.

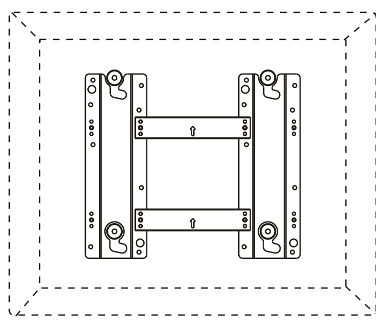


Fig.5

5. Put the back of the display unit close to the wall mounting holder, insert the four wall mounting connectors into the four calabash-shaped holes on the wall mounting holder. (Fig.5)

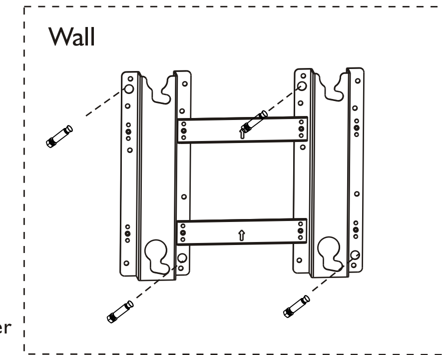


Fig.3a

3a. Screw 4pcs expansion bolts to fix the wall mounting holder on the wall.

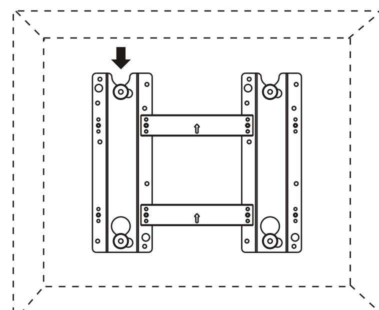


Fig.6

6. Let the display unit slowly slide down to the end of the calabash-shaped hole. (Fig.6)

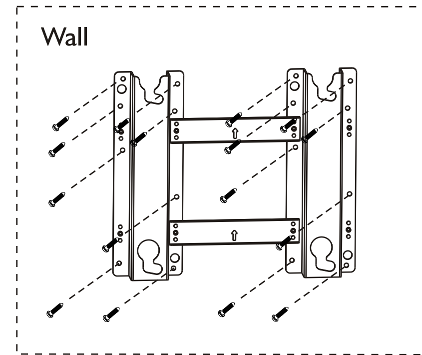


Fig.3b

3b. If your wall is a wooden structure, please fix the wall mounting holder on the wall with 16pcs wood screws.

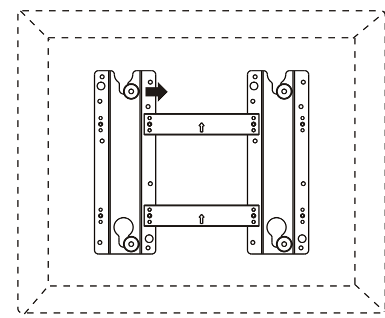


Fig.7

7. Push rightwards carefully until the wall mounting connectors fully slide into the right fix-grooves and be sure the mounting is secure.

8. If you want to dismount the unit do the above steps in reverse order.

Dec/2009

SANYO Electric Co., Ltd.